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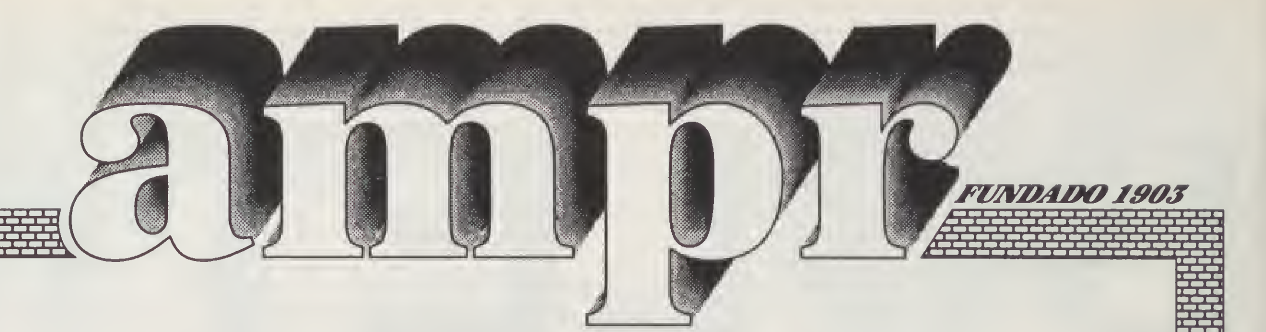
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Contenido


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Editorial:

Hacia una Visión Integral de la Reforma de Salud

*Robert Hunter Mellado, M.D.**
*Pedro M. Mayol, M.D.***

El Hospital San Pablo cumplió 18 años de fundado durante el mes de Octubre. En estos últimos años nuestra institución y facultad han sido testigos del desarrollo y cambios en la estructura que organiza la prestación de los Servicios de Salud en Puerto Rico. Futuros cambios son inminentes no sólo en nuestra isla sino en la nación norteamericana. La reforma de los Servicios de Salud ha tomado una prioridad política y económica obedeciendo de una manera clara y específica a que los recursos económicos no pueden mantener el ritmo de crecimiento de esta industria. Esto sirve de fuerza motriz que ha cambiado e indudablemente transforma el estilo en que se practica la medicina en Puerto Rico. Los preceptos básicos de mantener la calidad de la medicina que se practica y aumentar el acceso a servicios médicos de calidad son componentes que todos debemos apoyar. Reconocer el marco finito de los recursos disponibles para el área de la salud es obligación de todos.

Dentro de los cambios incluidos en la reforma de salud, llama la atención que el principal esfuerzo de la reforma está dirigida en gran medida a cambiar el ambiente en que se practica la medicina incluyendo los reglamentos, entes fiscalizadores, medidas de remuneración y estructuras corporativas. Hay menos énfasis en reformar la manera en que se practica la medicina. Ejemplos de los cambios anunciados incluye cambios en los planes médicos dirigidos a ofrecer cubierta de salud a un costo más reducido, alteración en la forma y manera que se presta la medicina pública en el país y una restricción al acceso a medicina subespecializada y de alta tecnología. Es posible que reformas en la práctica de la medicina de esta índole podrán motivar y quizás crear un ambiente propicio para futuros cambios, pero no será hasta que los profesionales aliados a la salud se envuelvan con cambios específicos en su área de trabajo que se verá una verdadera reforma que garantice la calidad de la medicina en un marco costo eficiente. Reforma de la Salud sin el compromiso y por ende la participación de los profesionales de la salud puede resultar en menor amplitud de servicio, comprometiendo la calidad de los mismos. Es necesario que las prioridades dentro de la reforma anunciada se conviertan en prioridades dentro de cada una de las organizaciones e individuos que representan las profesiones aliadas a la salud. En ese momento se verá una reforma verdadera basada en una visión más completa y dinámica de la salud capaz de hacer frente a los múltiples retos que surgen en los albores de un nuevo milenio.

Queremos agradecer a cada uno de los autores por sus esfuerzos en contribuir un artículo para hacer posible este ejemplar. Agradecemos y felicitamos a la Junta Editorial del Boletín de la Asociación Médica de Puerto Rico por la oportunidad brindada en contribuir este ejemplar y por su continuo esfuerzo y dedicación en continuar la publicación de esta revista.

**Director Programa de Educación Médica, Centro Médico San Pablo*
***Director Médico, Centro Médico San Pablo*

Original Articles:

Dengue Fever with Thrombocytopenia: Studies Towards Defining Vulnerability of Bleeding

By: Sylvia García, M.D.*
Randolfo Morales, M.D.**, Robert F. Hunter, M.D.***

Abstract:

Purpose: To define the period of greater vulnerability of bleeding in patients with Dengue fever in reference to the onset of their constitutional symptoms and the laboratory abnormalities.

Patients and Methods: In a retrospective study we reviewed the records of all patients admitted to San Pablo Medical Center in 1991 with a diagnosis of Dengue Fever or Hemorrhagic Dengue. All patients with a platelet count of less than 125,000 were included for analysis. The exclusion criteria included the presence of systemic disorders which may influence the platelet count, and patients without documentation regarding the presence of constitutional symptoms suggestive of viral illness.

Results: A total of 101 patients were analyzed of which only 74 were included in the study. All patients had fever and chills; skin rash, asthenia and general malaise was seen in over 50% of patients. Over 70% of patients had recovery of their platelet count, and most had their maximal thrombocytopenia within the 5th day and 8th day from the onset of constitutional symptoms. Leukopenia was seen in over 70% of patients with its lowest level within the 5th and 8th day from the onset of the constitutional symptoms. Significantly prolonged partial thromboplastin time was seen in 11% of the patients. Proteinuria was seen in 22% of the patients, 38% of which had it within the first 4 days of the onset of constitutional symptoms and also noted on the 5th and 6th day. Alteration in liver enzymes were noted in 47% of patients, with a maximal severity distributed in all time frames. Hypoalbuminemia was present in 28% of the patients, of these 67% presented within the first 4 days from the onset of constitutional symptoms. The pulse rate was usually normal in spite of the patient's dehydration and fever.

Conclusions: We identified three phases that define the sequence of events seen in the majority of patients with Dengue Fever and Thrombocytopenia. These are: 1. proteinuria and hypoalbuminemia; 2. maximal cytopenia; 3. bradycardia and liver enzyme elevation. We believe this information is useful in the management of patients with Dengue Fever and thrombocytopenia.

Resumen: **En este artículo se presenta un estudio de 100 pacientes con Dengue y trombocytopenia admitido al Centro Médico San Pablo en el 1991. Se establece el patrón de mejoría de las anormalidades de laboratorio, en particular el contaje de plaquetas en relación al comienzo de los síntomas constitucionales. Se establece un perfil de comportamiento clínico compuesto de tres fases basado en los hallazgos de laboratorio en relación al comienzo de los síntomas constitucionales.**

Introduction:

Dengue Fever remains an important febrile illness in tropical countries. It is responsible for substantial morbidity and occasional mortality. In Puerto Rico, it is one of the most common if not the most frequent viral infection requiring hospitalization. One of the major findings associated with Dengue are related to the development of hemorrhagic manifestations which are often associated to thrombocytopenia. The presence of significant thrombocytopenia, particularly in the context of minor hemorrhagic manifestations, often leads to difficult therapeutic decisions which include the administration of corticosteroids, use of fibrinolytic inhibitors and possible transfusion of platelet concentrates. These therapeutic maneuvers are considered in efforts to avoid life threatening hemorrhagic tissue damage to healthy patients with a completely reversible short lasting coagulopathy.

The management of patients with thrombocytopenia requires consideration of not only the severity of the process but the period of vulnerability to the patient. The latter is usually based on an estimate of the length of time the coagulopathy will last.

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In this paper we aim to present the clinical presentation of all patients with thrombocytopenia associated to Dengue Fever admitted to the San Pablo Medical Center in 1991.

Methods:

The medical records of all patients admitted to our center with a diagnosis of Dengue Fever or Hemorrhagic Dengue in 1991 were reviewed. Only patients with platelet counts of less than 125,000/ ul were included for analysis. Patients in which a chronic systemic disorder which may influence the platelet count were excluded (Antineoplastic Chemotherapy, Renal Insufficiency, collagen-vascular disorder, ITP). Patients in which no documentation was found regarding the presence of constitutional symptoms suggestive of viral infection were also excluded. (Absence of Fever, myalgias, or Asthenia).

Particular attention was given to the date of onset of the constitutional symptoms. The documentation of this information made possible the construction of time references relating the progression of a specific laboratory abnormality according to the specific date of onset of these constitutional symptoms. This format allowed us to compare the time of progression and recovery of specific laboratory abnormalities in our patients.

The presence of significant dehydration was present if the specific gravity of the urine analysis was <1.030. Elevation of liver function tests (ALT or AST) was present if they were elevated by more than twice the normal value. The presence of a prolonged partial thromboplastin time was present if it was greater than 10 seconds from the control. Hypoalbuminemia was defined as a serum albumin level of less than 3.5 gm%. Significant proteinuria was present if the urine dipstick was greater than 100ug%. Leukopenia was present if the white cell count was less than 4,000/uL.

Results:

A total of 101 records were analyzed corresponding to patients admitted to San Pablo Hospital in 1991 with a diagnosis of Dengue Fever or Dengue Hemorrhagic Fever. Thirteen patients were excluded due to the coexistence of a neoplastic disorder, chronic renal insufficiency, systemic lupus, Immunologic thrombocytopenia or no documentation of constitutional symptoms suggestive of viremia. Out of the remaining 87 patients an additional 14 were excluded due to the absence of significant thrombocytopenia (platelet count >125,000/uL). Thus 74 patients (34 females, 40 males) are the subject of this report.

In table I the age distribution of patients in the study is shown. All age groups were found to be represented with individuals older than 40 years accounting for 28% of the patient population.

In table II the frequency of the signs, symptoms and physical findings is presented. All patients compalined of fever and chills. Constitutional symptoms in the form of asthenia and general malaise were seen in 68% of patients. A skin rash was identified as complaint in 55% of patients. Gastrointestinal complaints in the form of nausea, vomiting or diarrhea were seen in 34% and 14% respectively.

The physical exam findings included some form of hemorrhagic manifestations distributed as follows: petechia 22%, mucosal bleeding in 16%, gastrointestinal bleeding 5%, and hematomas in 4%. Most of our patients had a normal heart rate (60-99/min) in the setting of an elevated temperature. True Bradycardia (less 60 min) was seen in 8% of patients. Adenopathy, splenomegaly and Hepatomegaly were documented in 9%, 4% and 1% respectively several patients presented with confusion and disorientation (4%).

Table I
Age Distribution: Dengue Fever and Thrombocytopenia

Age (yrs)	Number of Patients	Percent
<10	9	12%
11-20	17	23%
21-30	17	23%
31-40	11	15%
41-50	5	7%
51-60	8	11%
61-70	4	5%
>70	3	4%
	74	100%

Table II
Clinical Manifestations: Dengue Fever and Thrombocytopenia

Sign or Symptom	Number of Patients	Percent
Fever/chills	74	100
Malaise/Asthenia	50	68
Skin Rash	41	55
Headache	40	54
Myalgia	35	47
Arthralgia	27	36
Anorexia	26	35
Nausea/Vomiting	25	34
Pruritus	10	14
Diarrhea	10	14
Ocular pain	8	11
Dizziness	5	7
PHYSICAL FINDINGS		
Petechia	16	22
Mucosal Bleeding	12	16
Adenopathy	7	9
Bradycardia	6	8
Gastro Intestinal Bleeding	4	5
Splenomegaly	3	4
Hematoma	3	4
Confusion/ Disorientation	3	4
Hepatomegaly	1	1

Abnormalities in the laboratory exam˙ were frequently seen. In this report particular emphasis was given to the tempo of progression and recovery of these laboratory abnormalities in reference to the onset of the constitutional symptoms.

Thrombocytopenia:

All patients had thrombocytopenia of less than 125,000/uL, 82% of patients had less than 100,000/uL, 28% less than 50,000/uL and 4% less than 25,000/uL. Careful attention was given to define the time required for maximal thrombocytopenia calculated from the day of onset of the constitutional symptoms. In Figure 1 an analysis of the time of maximal thrombocytopenia is presented. The distribution of time to maximal thrombocytopenia ranged from less than 4 days to greater than 9 days from the onset of constitutional symptoms. Ninety-two percent of patients (92%) developed their maximal state of thrombocytopenia within the first 9 days of their disease and most patients (77%) between the 5th and 8th days of their illness. An attempt was made to define the rate of platelet recovery. This was defined as the presence of a platelet count increment of at least 20,000 uL. Only patients with platelets count of less than 50,000/uL were included in this sub-analysis recognizing the fact that it is in this group that the decision to transfuse platelet concentrates frequently has to be made.

In figure 2 our results are presented. 76% of patients (16/21) had significant platelet count recovery within 3 days of their lowest platelet count with a substantial majority in their third day of maximal thrombocytopenia. The remaining patients had significant platelet recovery in the fourth and fifth day.

A subgroup of patients with thrombocytopenia of less than 50,000 received corticosteroids in various dosages, we analyzed the rate of platelet recovery in this group as compared with the group with the same severity of thrombocytopenia who did not receive corticosteroids. Eighty-one percent (81%) of patients

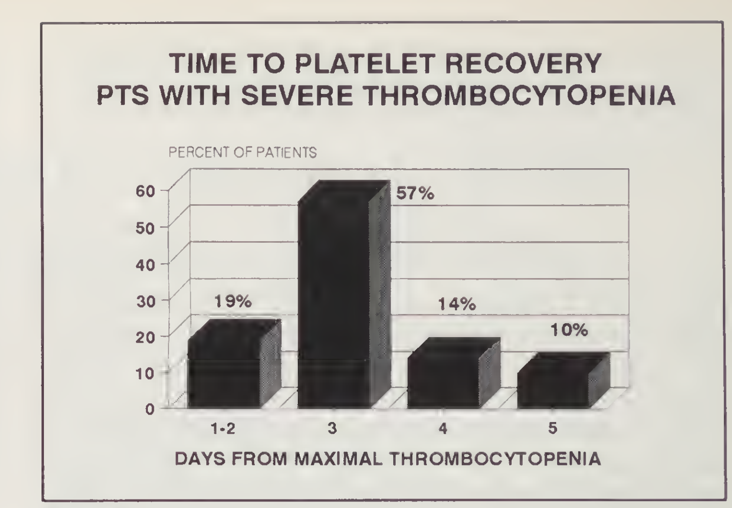


Figure 2

who received steroids had significant recovery within 72 hours as compared to 60% in the group without steroids. These differences are not statistically significant (p=.3, t-test, two sample).

The presence of Leukopenia was detected in 73% of patients, with 56% having a WBC of less than 3,000 cells/uL. In Figure 3 we present a relation of the time of most severe Leukopenia and the onset of constitutional symptoms. Sixty six percent (66%) of patients developed the maximal state of leukopenia between the 5th and 8th day from the onset of their constitutional symptoms.

In Figure 4 an anlysis is made of the time to recovery of leukocyte count (greater than 4,000/ul) from the point of the lowest leukocyte count. In most patients (69%) the time to recovery was greater than 6 days from the lowest leukocyte count.

We found that 8/74 (11%) of patients had a significantly prolonged partial thromboplastin time (greater 10 sec. from control). These patients had a normal prothrombin time. All patients with prolonged ptt expressed this finding between the 4th and 6th day from the onset of constitutional symptoms. We were unable to define time of recovery for this abnormality

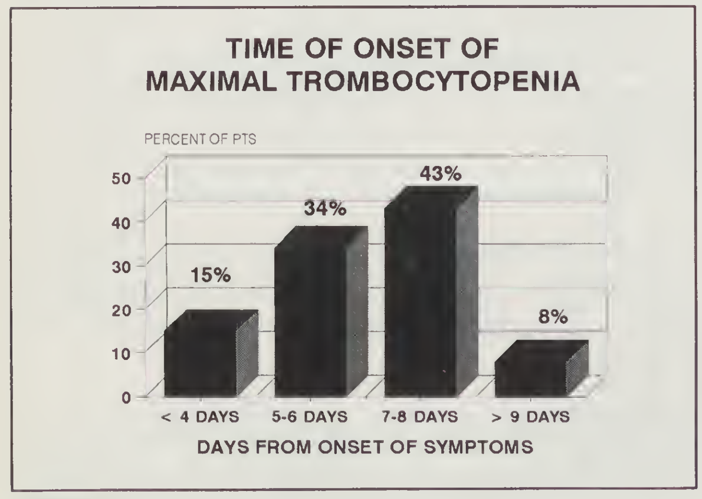


Figure 1

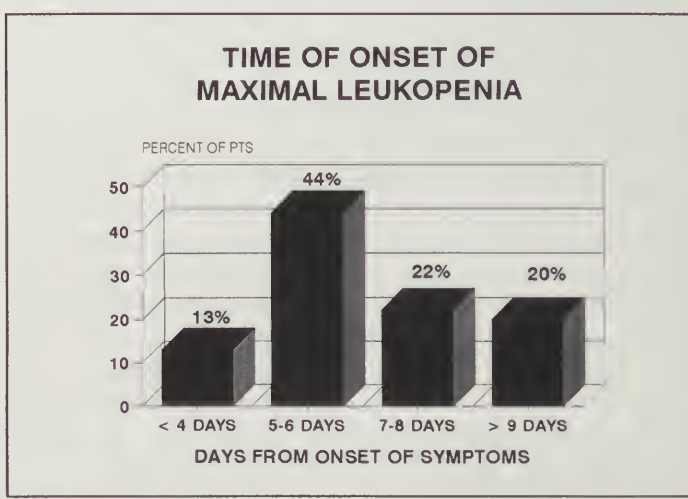


Figure 3

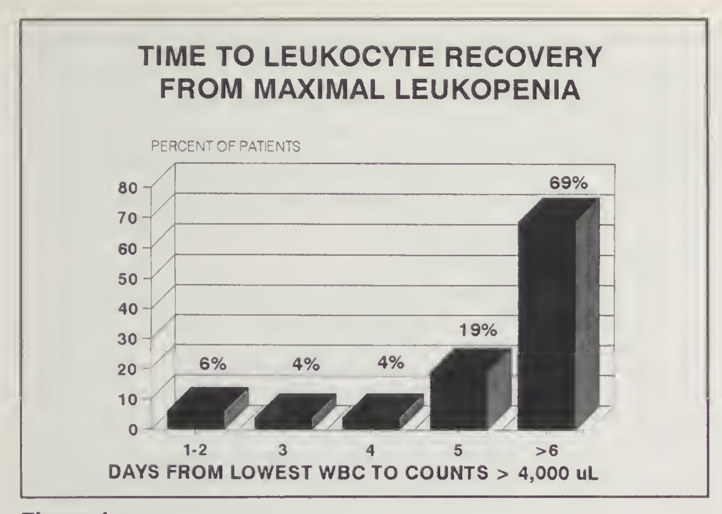


Figure 4

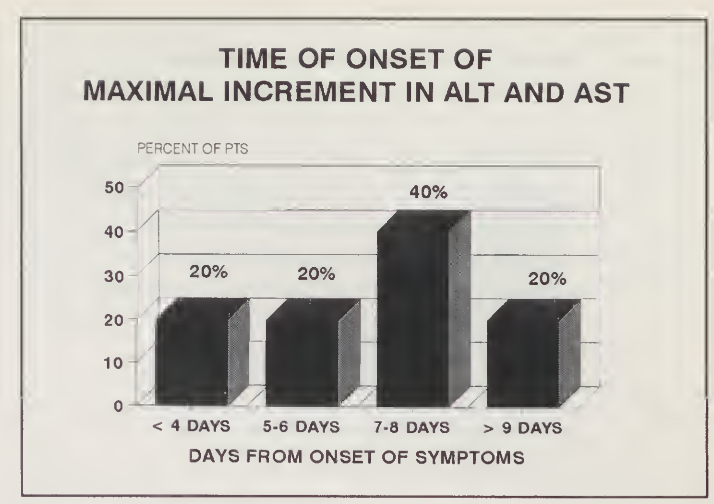


Figure 6

since most patients did not have a follow up ptt. No relationship could be established between the presence of an abnormal ptt and the degree of severity of the thrombocytopenia.

Proteinuria was present if the urine analysis dipstick was greater than 100 ug/dl. Proteinuria of this magnitude was seen in 16/74 patients (22%). In Figure 5 we present the time of documentation of Proteinuria from the onset of constitutional symptoms. The majority of patients presented proteinuria early in the course of the illness. In 38% of patients the proteinuria was seen within the first four of days after the onset of constitutional symptoms and a similar number in the 5th and 6th days.

Significant alterations in the hepatic enzymes (ALT, AST) was seen in 35/74 patients (47%). The degree of severity was variable with 26/74 patients (35%) presenting alterations greater than three times normal. In 10/74 patients (14%) the alteraions were severe (greater 5 times normal). In Figure 6 the time to maximal elevation in the ALT, AST in relation to the onset of constitutional symptoms is presented. The maximal severity of hepatic enzymes elevation was distributed in all time frames analyzed.

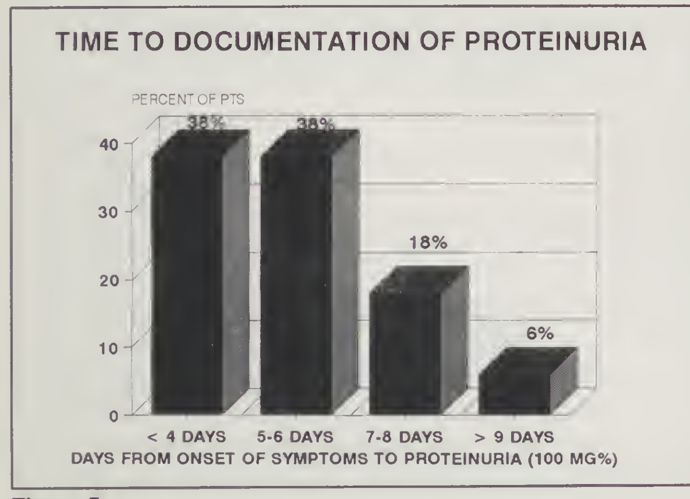


Figure 5

Hypoalbuminemia was present in 21 of the 74 patients (28%). In most patients the severity of the hypoalbuminemia was mild with 72% presenting albumin levels between 3-3.5 gm%. Fouteen percent (14%) of patients were seen with albumin levels between 2-3gm% an identical number with <2 gm%. In Figure 7 we present the time of onset of hypoalbuminemia in relation to the onset of the constitutional symptoms. In 86% of patients hypoalbuminemia ocurred within 6 days of the onset of constitutional symptoms with a great majority of these patients 14/21 (67%) presenting within the first four days of their illness. We have analyzed the time of onset of hypoalbuminemia in relation to the degree of severity of the same. No relationship was established between the severity of the albumin levels and the time of onset of the same. The mean time of development for patients with Albumin between 3-3.5 gm% was 4.2 days, between 2.1-3.0 gm% was 3 days and for patients with less than 2 gm% 4.3 days.

A normal pulse rate was often seen in our patients in spite of the presence of clinical states which usually result in tachycardia (dehydration, fever, ect.). In 6 patients significant Bradycardia (range 40-60) was seen. In four of these patients the Bradycardia was found within the first 6 days after the onset of their illness. There were 2 patients in which the onset of Bradycardia was late ocurring for the first time 8 days after the onset of the constitutional symptoms.

Discussion:

Dengue Fever is usually a self limited illness caused by the infection of one of four dengue serotypes. In Puerto Rico the disease is considered edemic with outbreaks occurring throughout the year. It has been reported that between 13-15% of confirmed cases of Dengue Fever are hospitalized and approximately 25% develop at least one hemorrhagic manifestation.[1,2]

In this paper we have elected to study the development of the laboratory abnormalities in patients with

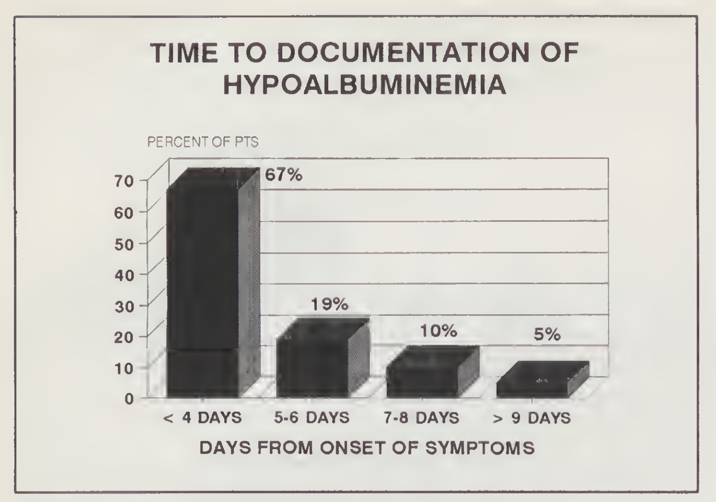


Figure 7

dengue infection which require hospitalization. We have documented the onset and in some tests the recovery of the abnormality in relation to the onset of constitutional signs and symptoms. This allowed us to compare the evolution of certain elements of the infection across all patients. Our primary goal was to define the abnormalities which may be associated to the hemorrhagic manifestation of dengue infection, for which reason patients without thrombocytopenia or patients in which non dengue etiologies for the thrombocytopenia were excluded from the study.

A total of 101 patients with dengue infection were admitted to our institution in 1991. The presence of significant thrombocytopenia in 84% suggests this finding is an important consideration for the hospital admission of the majority of patients with dengue fever.

All age groups were represented in this cohort of patients, although 58% of all admissions were under the age of 30. On an Island wide basis a similar age distribution of confirmed Dengue infections seen in patients less than 30 years of age.[3]

In figure 1 and 2 we illustrate the time frame for the development of maximal thrombocytopenia and leukopenia in the study group. Over 90% develop their maximal state of thrombocytopenia within 8 days of the onset of constitutional symptoms with 50% in the first 6 days of their illness. To a large extent the maximal state of leukopenia was similar to the platelet decrement, although 20% of patients required more than 9 days to develop their maximal leukopenia. In both parameters the majority of patients developed their maximal cytopenia between the 5th and 8th day of their symptoms.

One of the primary aspects of this study was to define the tempo of recovery of the cytopenic abnormalities. Our findings are summarized in fig. 8. As seen the recovery of platelets and leukocytes were quite different. Platelet recovery was frequently documented within 72 hours of the lowest count as compared to greater than 6 days for the leukocyte count. As mentioned previously the platelet recovery analysis only included patients with severe thrombocytopenia(<50,000/ul). We do not feel this fact would account for the differences in the recovery between platelets and leukocytes due to the observation that the platelet recovery in patients with less than 50,000 took somewhat longer than recovery in patients with platelet counts >50,000.

The use of corticosteroids is frequently considered in patients with Dengue fever and thrombocytopenia. The efficacy of this therapeutic maneuver is poorly documented in the medical literature. The conceptual basis for steroid use is multifactorial and includes the control of the inflammatory reaction in vessels[4], decreasing the affinity of immune complexes to the monocyte Fc receptor[5] and finally reducing the impact of dengue infection to the megakaryocyte[6]. In this study no significant differences with regard to platelet recovery could be established between patients who received steroids as compared to those who did not. It should be mentioned that the dosage and the schedule of administration of the corticosteroids were different amongst these patients thus further efforts to study this question are meritorious.

We detected a significant prolongation of the partial thromboplastin time in 11% of patients. This finding was exclusively seen between the 4th and 6th day of the illness in all patients Fig 9. No correlation between severity of the thrombocytopenia and the prolonged ptt was established. In addition all patients had a normal prothrombin time. In three of these patients the plasma was subjected to mixing studies in efforts to evaluate the nature of the prolonged ptt. In all cases the ptt did not correct, suggesting the presence of some type of inhibitor as the cause of the prolonged ptt. The nature of this inhibitor requires further evaluation, nevertheless the findings strongly suggests that factors other than consumption coagulopathy are involved in the prolongation of the ptt in dengue infection.

Proteinuria and hypoalbuminemia were detected in 22% and 28% of our patients respectively. The

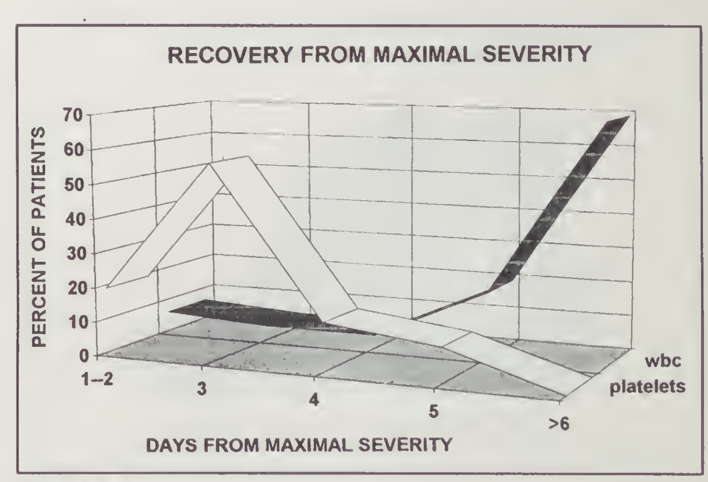


Figure 8

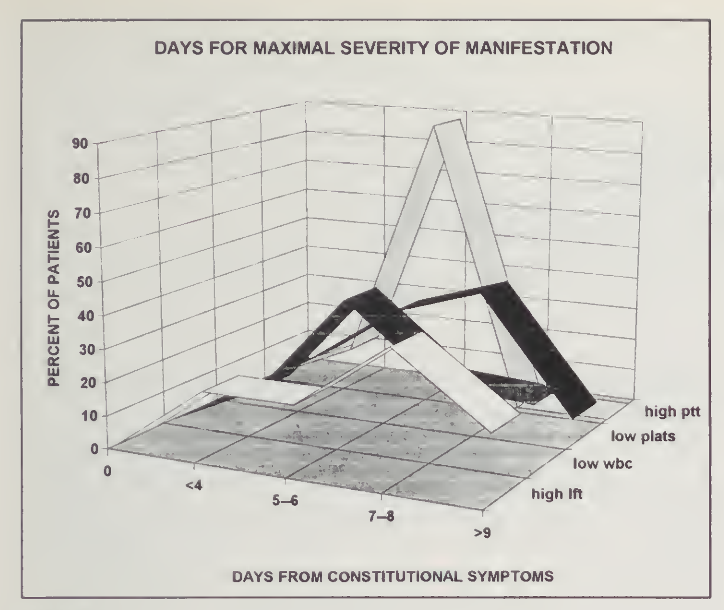


Figure 9

documentation of the proteinuria was seen in 38% in the first 4 days of their illness and in 56% of patients within the 5th and 8th day of the disease. The presence of proteinuria in febrile illness is a common finding.[6]

The presence of hypoalbuminemia was confirmed in 28% of our patients although in the majority the reduction was mild (between 3-3.5gm%). In most patients this finding was seen within the first 4 days of their illness. We believe the hypoalbuminemia is likely related to the increased vascular permeability and leakage of the albumin into the extravascular space. No correlation could be established between the severity of the hypoalbuminemia and the time of onset of their symptoms. A similar percentage of all patients with albumin levels below 2gm% , below 3gms% and below 3.5gm% presented with this finding within 4 days of the onset of their constitutional symptoms.

Alteration in liver enzymes were seen in a majority of patients. Significant elevations of the ALT and AST as defined by at least two times the normal was seen in 47% of patients. Similar observations has been described by others.[2] The time of maximal severity of the elevation was distributed through-out the time frames examined, with 20% of patients presenting their most elevated set of enzymes both on admission and after nine days of the onset of their constitutional symptoms.

In figure 9 and 10 a summary of the time frames for the development of maximal severity of the laboratory abnormalities is presented. The sequence of events based on findings seen in the majority of patients can best be divided into three distinct phases. The first phase is characterized by the development of hypoalbuminemia and the detection of proteinuria. This occurs at, or before the forth day after the onset of the clinical symptoms of the infection. The second phase occurs between the 5th and 8th day of the infection where maximal cytopenia is seen. The leukopenia occurs most often in the 5th and 6th day while the maximal thrombocytopenia in the 7th and 8th day. A small number of patients develop significant alterations in the ptt between the 4th and 6th day of the illness. The final phase is characterized by relative or true bradycardia and elevation in the liver enzymes which occurs through out the illness with a considerable number of patients developing this abnormality after the first 8 days of their illness.

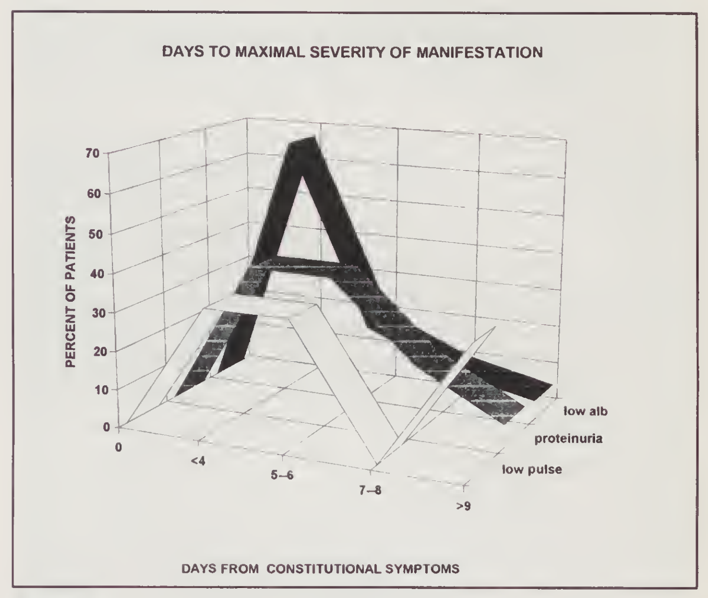


Figure 10

One of the most common indications for hospitalization of patients with Dengue fever is the necessity to aggressively institute hydration and the presence of coagulopathy. We have attempted to define the period of greatest vulnerability of these patients in reference to the onset of their constitutional symptoms. We have also presented an analysis of the time frames for the tempo of progression of some of the laboratory abnormalities seen in patients with dengue fever. We believe this information will prove useful at the time clinicians have to make a decision on whether to recommend platelet transfusion support.

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Original Articles:

The Pediatric Inguinal Hernia: Is Contralateral exploration justified?

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Abstract: **To determine if contralateral inguinal hernia exploration is justified we decided to study our experience with 161 consecutive cases who underwent bilateral repair during a 30 months period. 61% of the population were infants younger than two years of age, and 19% premature babies. 69 pts presented with an RIH, 47 with an LIH and 45 pts with BIH. 16% suffered an episode of preoperative incarceration which were all reduced satisfactorily and operated promptly. A positive contralateral finding (either a hernial sac or a patent processus vaginalis) was identified in 74% RIH and 72% LIH patients upon exploration. No incidence of testicular edema/atrophy, vas deferens injury, or recurrence was reported in the six-year follow-up of the study. Statistical analysis of the contralateral findings during surgery with sex, gestational age and age at operation showed that females and infants younger than two months of age had a higher probability of having positive findings. We could not show that prematurity or left-sided hernias were associated with a higher positive contralateral rate. The major benefit of contralateral exploration is based on the fact that it allows discovery and elimination of a patent processus vaginalis so a hernia cannot develop subsequently. We conclude by establishing certain criteria that justifies the routine contralateral exploration of the pediatric hernia: the surgeon should be experienced in child care, associated conditions should not increase the surgical risks significantly, time-consuming dissections of the cord structures should be discouraged, and the operating time should be kept to a minimum.**

INDEX WORDS: *inguinal hernia, pediatric*

From the 1950's until the present, the issue of contralateral exploration in the pediatric inguinal hernia patient has been in dispute. Proponents of routine contralateral exploration cite the high percentage of contralateral hernia a/o potential hernia (patent processus vaginalis) found at routine exploration, the avoidance of the cost of a second hospitalization, psychological trauma and anxiety to the child and parents over a second operation, the added risk of anesthesia of a second procedure, and the possibility of development of an incarcerated hernia at a later date[1]. Opponents of routine contralateral exploration states that many needless procedures are performed to avoid the development of only a few clinical hernias, a lengthened operating time by the contralateral exploration may augment the risks of damage to the cord or gonad by the procedure itself[2].

A survey by Rowe and Marchildson in 1981[3], showed that 80% of pediatric surgeons habitually explore the contralateral side in male patients, and 90% do so in females patients. There is no consensus regarding the validity of clinical criteria which would justify the contralateral exploration. Clinical criteria which have been cited as possibly important include the primary site of the hernia, age, sex and the utilization of herniography or some intraoperative technique to check the contralateral side.

With such a broad variance of opinions regarding routine contralateral exploration we decided to study our experience and examined 161 successive patients who underwent bilateral hernia repair by the author during a 30 month period.

Material and Methods

The medical charts of all infants and children who underwent consecutive repair of inguinal hernias by the same surgeon (HLV) from July 1985 to December 1987 at the Ramon Ruiz Arnau University Hospital (HURRA) and Hospital San Pablo (HSP), were retrospectively reviewed.

During this period 248 patients were identified, 87 who underwent a unilateral procedure and 161 patients with bilateral inguinal procedures. This last group of patients comprise the study group. The charts were reviewed for sex, age at operation, gestational age, diagnostic characteristic, associated conditions, pre- and postoperative complications, findings during surgery, and outcome. The findings during surgery were then analyzed by sex, gestational

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age and age at operation using chi-square analysis. A $p < 0.01$ was considered significant.

The surgical procedure was performed under general endotracheal anesthesia using 3.5x magnifying loupes. A bilateral transverse inguinal crease incision was done and scarpa's fascia opened. The external spermatic ring was identified and without opening the external oblique fascia the cord was brought forth to the wound area. The hernia sac or processus vaginalis was carefully dissected free from the cord structures and ligated high with silk 000. No further dissection attempts were done if an obliterated processus vaginalis was identified. All specimens were submitted for pathological exam. Scarpa's was reaproximated with polyglycolic acid 0000 suture and skin approximated with subcuticular chromic catgut 0000 suture.

Results

There were 161 patients who underwent bilateral inguinal exploration and repair, 81 patients came from HURRA and 80 from HSP. Males were 89 and females 72 for a 1.2:1 ratio. Age at operation is shown in Table 1, showing that almost two-thirds (61%) were infants younger than two years of age, generally the population of children referred to a pediatric surgeon. Information regarding the gestational age was retrieved in 110 patients of the study group. Of these 89 pts (81%) were at term and 21 (19%) were premature babies. Table 2 displays the initial clinical mode of presentation of the patients, 69 pts presented with a right inguinal hernia (RIH), 47 with a left inguinal hernia (LIH), and 45 pts with bilateral inguinal hernias (BIH). Males and females were distributed evenly between the groups.

Table 1
Age at Operation

	Males	Females	Total
0-2 mo	16	10	26 (16)
2-12 mo	31	22	53 (33)
12-24 mo	15	3	18 (11)
2-5 y/o	21	20	41 (26)
>6 y/o	6	17	23 (14)
Total	89	72	161 (100)

No in ( ) are %

Table 3 shows the associated conditions: 25% of our patients had past history of some kind of airway disease process, most commonly bronchial asthma. All cases with undescended testis were pexed concomitantly. None of the umbilical hernias

Table 2
Mode of Presentation Clinically

	Male	Female	Total
RIH	37	32	69 (43)
LIH	29	18	47 (29)
BIH	23	22	45 (28)
Total	89	72	161 (100)

No in ( ) are %

underwent simultaneous repair. A group of 25 patients (16%), suffered an episode of preoperative incarceration which were all successfully reduced manually and repaired promptly, their mean age was 4.2 mo. No patient suffered from strangulation or testicular edema. At that time 102 (63%) procedures were done as one day surgery, and 59 (37%) as outpatient. The mean operating time was 20+/-8 minutes. Operative findings during surgery were recorded as a hernia sac (HS), a patent processus vaginalis (PPV), or an obliterated processus vaginalis (OPV). In that group of patients with an initial diagnosis of BIH we found 85 (95%) hernias, 4 (4%) PPV and 1 (1%) OPV, they will not be considered further. Those patients with a unilateral (RIH or LIH) hernia are shown in Table 4.

Table 3
Associated Conditions

Respiratory illness (i.e. asthma)	40	(25)
Congenital Heart Disease (VSD, PDA)	6	(4)
GU		
Hydrocele	23	(14)
Crytorchidism	3	(2)
Hypospadia	1	(0.6)
Retractile testis	1	(0.6)
Polycystic Kidney	1	(0.6)
Umbilical Hernia	10	(6)
Neurological		
V-P Shunt	1	(0.6)
Epilepsy	1	(0.6)

No in ( ) are %

A positive finding (either a hernial sac or a patent processus vaginalis) was identified in 74% RIH and 72% LIH patients when the contralateral side was explored. All hernias were of the indirect type. The postoperative complications are listed in Table 5, the most common were two patients with residual scrotal hydrocele that resolved spontaneously six months

Table 4
Contralateral Findings

Initials DX	HS	PPV	OPV
RIH 69 pts	28 (41)	23 (33)	18 (26)
LIH 47 pts	19 (40)	13 (28)	15 (32)
Total	47 (41)	36 (31)	33 (28)

No in ( ) are %

after surgery. A premature infant with a postconceptual age of 46 weeks had an episode of apnea in the immediate postop period, requiring mechanical ventilation for one day. Another patient required inhalation therapy for a postintubation croup condition. We did not find testicular damage or hernia recurrence after a mean follow-up of six years. No wound infections were identified and no mortality was seen.

Table 5
Post-op Complications

Residual hydrocele	2 (1.2)
Post-op apnea	1 (0.6)
Post-intubation croup	1 (0.6)
Testicular edema/atrophy	0
Recurrence	0

No in ( ) are %

When the contralateral findings during surgery were compared and analyzed within the three subgroups of patients (sex, gestational age and age at operation), we found that females had a higher probability of having positive findings than males, as seen in Table 6. No statistically significant differences were seen when the history of prematurity was considered. The infants younger than two months had the highest probability of positive findings. We also obtained statistic significance in patients above the two years old, probably the result of the higher frequency of females over males in this subgroup of patients.

Discussion

If routine contralateral exploration of the unilateral pediatric hernia is to prevail it should be related to a high yield of positive findings (HS and PPV), a low complications rate and because it can be expeditiously accomplished[4]. From this study, there is a high percentage of positive contralateral operative findings (72% in our series), and a very low incidence of significant mor-bidity following contralateral repair. Our data favors the contralateral exploration of infants and children with unilateral hernia by pediatric surgeons. We agree with McGregor et al[5], that we live in a litigious society and gonadal morbidity whether related to the hernia operation or not can eventually result in litigation. As with any surgical intervention the physician factors which allow effective intervention include procedure education, self-confidence gained by experience, and informed consent.

It should be noted that bilateral procedures took a mean time of 20 minutes. Time should not be spent in tedious dissections of the cord structures so

Table 6
Subgroup of Patients and Contralateral Findings

	Cases	Positive Findings	Negative	Probability
Sex		(HS+PPV)	(OPV)	
Males	66	37	29	NSS
Females	50	46	4	$p<0.0001$
Gestational Age				
Term	63	44	19	NSS
Premature	14	9	5	NSS
Age at Operation				
0-2 mo	16	15	1	$p<0.0005$
2-12 mo	42	25	17	NSS
12-24 mo	17	7	10	NSS
2-5 y/o	28	24	4	$p<0.01$
>6 y/o	13	12	1	$p<0.005$

NSS= not statistically significant

as to increase the yield of PPV identified, this could certainly be a factor in the past experience of other surgeon with regards to gonadal or vas deferens trauma. Nowadays most cases are done as outpatients procedures. Previous reports have shown a higher incidence of positive contralateral findings in young infants, females, prematures, and when the presenting hernia is on the left side[6,7,8]. Our data confirms that young infants and females do have a higher yield of positive findings (92% and 94% respectively). We could not demonstrate that prematurity or left-sided hernias were associated with a higher positive rate (64% and 68% respectively). The older children group (2-5 y/o and >6 y/o) with a higher positive yield could be biased since females were represented most commonly.

As other authors have stated, the major benefit of contralateral exploration of the pediatric hernia is that it allows discovery and elimination of a patent processus vaginalis so that an indirect inguinal hernia cannot develop[2]. We conclude by establishing some criteria to justify routine contralateral exploration of the pediatric hernia: the surgeon should be experienced in child surgical care, associated conditions should not increase the surgical risks significantly, time-consuming dissections of the cord structures should be discouraged and the operating time should be kept to a minimum.

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Abstracto: **Con el propósito de determinar si la exploración contralateral de la hernia inguinal pediátrica se justifica o no, decidimos estudiar la experiencia del autor (HLV) con 161 pacientes operados consecutivamente durante un periodo de 30 meses en el Hospital Universitario Ramón Ruiz Arnau y el Hospital San Pablo. 61% de la población eran infantes menores de dos años de edad y 19% prematuros. 69 pacientes presentaron inicialmente una hernia inguinal derecha (HID), 47 una hernia inguinal izquierda (HII), y 45 hernias inguinales bilaterales (HIB). Un 16% de la población sufrió un episodio de incarceración preoperatorio reducido manualmente y manejado prontamente. Un hallazgo positivo (tanto un saco de hernia como un proceso vaginal patente) se identificó en 74% y 72% de los pacientes con HID y HII respectivamente durante la exploración contralateral. No se reportó edema o atrofia testicular, daño al conducto de los espermatozoides, o recurrencia de la hernia durante el seguimiento postoperatorio de seis años del estudio. Análisis estadístico de los hallazgos contralaterales durante la cirugía comparando sexo, edad gestacional y edad al operarse mostraron que las hembras y los infantes menores de dos meses de edad tenían una probabilidad significativa ($p < 0.01$) de albergar hallazgos positivos. No pudimos demostrar que prematuros o hernias iniciales del lado izquierdo estuvieran asociadas con hallazgos positivos contralaterales. El mayor beneficio de la exploración contralateral es que descubre y elimina un proceso vaginal patente de forma tal que una hernia no pueda desarrollarse en la vida futura del niño. Concluimos estableciendo una serie de criterios que justifican la exploración contralateral de la hernia inguinal pediátrica: el cirujano debe tener vasta experiencia en el manejo del paciente pediátrico, las condiciones asociadas no deben aumentar significativamente el riesgo quirúrgico, la disección prolongada del cordón espermático se debe evitar, y el tiempo operatorio debe mantenerse en un mínimo.**

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Original Articles:

Current Results of Lower Extremity Revascularization with Vein Grafts

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Atherosclerotic vascular disease of the lower extremities cause significant morbidity, especially in our oldest people, and impose a great health and economic burden. It has a severe emotional impact on our patient. Bypass Surgery remain the mainstay of therapy for patients with the most severe involvement. The widely different involvement patterns, may tax surgeon's experience and inventiveness.

The treatment outcome of this disease in the lower extremities is influenced by a series of unique factors that make it difficult to extrapolate from experience in any other vascular system.

In this article we review our experience with the use of vein grafts in lower extremity revascularization and the factors that determine the outcome of the surgical therapy.

Materials and Methods:

Our experience in a five year period, first at the University District Hospital in San Juan and later at Hospital Hermanos Meléndez in Bayamón from July, 1988 to June 30, 1993, was reviewed. A total of 200 lower extremity revascularizations were performed in 189 patients, in which vein was used as the sole graft or in combination with synthetic materials, for the treatment of atherosclerotic occlusive or aneurysmal disease. One hundred and six men and 83 women, whose ages ranged from 32 to 93 years (mean 70 ± 11 years), were in the study. Seventy four percent of bypasses were done in diabetic patients (data available in 179 pts). The incidence of tobacco use was 57% (data available o 164). The indication for operation was critical (limb threatening), acute or chronic ischemia, as defined by symptoms of rest pain, non healing ulcer and/or gangrene, in 176 (95%) of the 185 from which the data was available, four (2%) was for popliteal aneurysm or cellulitis and five (3%) for claudication.

The Table I list the different reconstructions included. Most patient underwent preoperative and serial postoperative noninvasive hemodynamic testing. The ankle-arm systolic pressure index (AAI) was calculated. The preoperative AAI measured 0.44 ± 0.28 (mean ± 1 standard deviation) in 126 cases from which data was available.

Table 1

Type of Reconstruction	No.
Femoro Tibial in Situ	116
Femoro Popliteal in Situ	28
Composite	6
Popliteal Tibial (in situ and ex Situ)*	34
Femoro Tibial ex Situ Orthograde	4
Arm Veins	5
Femoro Tibial in Situ plus Fem-Fem or Axillo-Fem	5
Femoro Popliteal ex Situ	2
Total	200

**includes grafts to the pedal, plantar and tarsal arteries.*

The postoperative follow up ranged form 6 to 60 months. Graft patency was determined by pulse over the graft, pulse distal to the graft when it was absent preoperatively and/or graft duplex with flow imaging. Primary graft patency rates were determined by the life-table method. The secondary patency data is not included in this study. The paired student test was used to compare the preoperative and postoperative Ankle-Arm Index.

Results:

The life-table cumulative primary patency data for all grafts is listed in table II and depicted in figure 1.

The early (30-days) graft patency was 91%. The cumulative primary patency rate was 80% at 1 year, 75% at 2 years and 70% at 3 1/2 years. The mean postoperative Ankle-Arm Index was 0.88 ± 0.23 for a

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Table II.
Lower Extremity Revascularization with Vein Grafts
Life-Table Analysis of Primary Patency

Interval (mo.)	No. Graft Risk	No. Failed	Withdrawn Duration/Death	Lost F/U	Interval Patency	Cumalitive Primary Patency	Standard Error (%)
0-0	200	17	10/15	7	0.91	100%	0
1-3	151	8	17/9	7	0.94	91%	2.2
4-6	110	5	6/3	5	0.95	86%	3.1
7-9	91	2	2/2	3	0.98	82%	3.6
10-12	82	1	2/1	1	0.99	80%	4.0
13-18	77	4	2/3	4	0.95	79%	4.1
19-24	64	1	6/3	4	0.98	75%	4.7
25-30	50	2	4/4	2	0.95	74%	5.3
31-36	38	0	7/3	1	1.00	70%	6.2
37-42	27	1	8/0	0	0.96	70%	7.4

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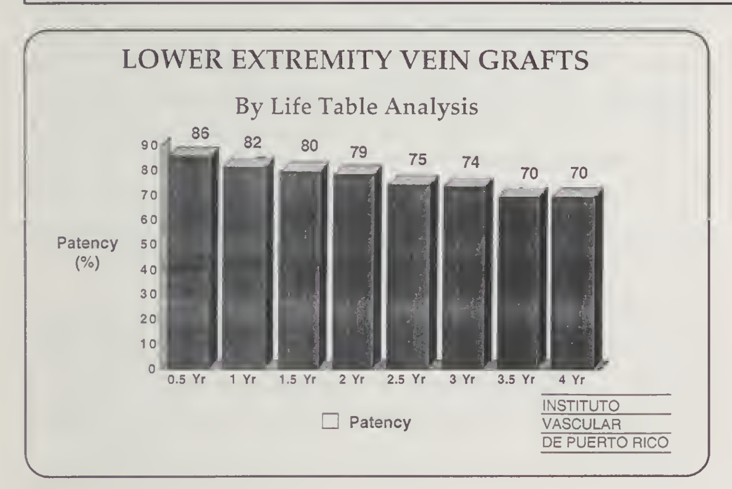


Figure 1

mean increase of 0.44 ($p>0.05$). The causes of early and late (after 30-days) graft failure are listed in table III with its outcome regarding amputation. There was 17 early grafts failure and 24 late failure, for a total of 42. Sixteen, of this 42 graft failure, underwent amputation, 10 have secondary patency and 26 saved the limb. Some of the failing grafts were detected intra-operatively without apparent reasons and no revision was done when finally failed two to three days later. The secondary patency data is not calculated since it was not significantly different from th primary patency due to the small numbers of revised grafts. The limb salvage paralleled the patency rates. There were six amputations (early and late) with a patent graft.

Results with different bypass techniques or configuration are not significantly different in our series. Reconstructions to the tibialis or distal arteries comprised 86% of all. An incomplete pedal arch was found in 81 (88%) of the 92 evaluable cases. Seven patients died within 30 days of operation for an operative mortability of 3.5%.

Discussion:

Patency of the lower extremity revascularization is intimately related to the outcome regarding limb salvage. The performance of vein grafts has been shown superior to synthetic grafts, especially in the presence of adverse factors.[1-3] The factors that affect graft function negatively are poor run off (increased outflow resistance),[4-6] poor inflow,[7] small graft diameter or long grafts,[8-10] infrapopliteal revascularizations,[11] thrombogenicity.[12]

Our series was made up essentially of limb salvage procedures in diabetic patients with small vessel disease as shown by the frequency of incomplete pedal arch and distal (tibialis-pedal) artery bypasses. These characteristics have been associated with the most severe (critical) chronic ischemia and with the worst prognosis regarding graft performance and limb salvage.[13-14] We did not exclude any subgroup of patients to have an overall idea of the current result with surgical therapy in these groups of patients.

The primary patency rates in these series compare favorably with those reported in the literature by others, in spite of 86% of all being to the tibialis or pedal arteries.[2-7-9-15-26]

We did not find significant difference in the performance of femoro-popliteal versus femoro-tibialis bypasses. This is probably related to failure of femoro-popliteal grafts to a blind (isolated) popliteal segment that were included with this group in our series.

The early graft failure in this series is related to a technically demanding procedure, the need of long vein grafts, high frequency of small vein diameter and an aggressive revascularization policy even in the face of most severe outflow disease. This experience is similar to that reported by others.[13-16] Bergamini

et. al. points out the frequency (24%) with which the venous conduit was modified to successfully complete the procedure due to technical error or inadequate vein segment (7). Late graft failure is also related to venous graft lesions or poor outflow conditions caused by progressive disease. We found that when the graft failure (early or late) is related to the vein graft itself, it did not lead to acute ischemia and an immediate amputation.

The causes of early graft occlusion that we call "undetermined" might include coagulation parameters[12] or heparin induced thrombocytopenia, tibialis arteries and venous graft spasm and increased outflow resistance. Increased outflow resistance may be severe in diabetics by the small vessel or microcirculatory disease, although the existence of this last entity has been challenged.[27-29]

Interestingly, we have noted that some early graft failures clustered in the first four postoperative days and occurred without any apparent reason ("undetermined" factors). The completion arteriogram was normal, the intraoperative arterial doppler signal over the graft was normal, the graft was initially thrombus-free in the face of early acute foot ischemia or at a time the distal pulse disappeared. There was no distal doppler signal and it was pulsatile but without flow over the graft. This situation always leads to amputation after unsuccessful revision or thrombectomy when the graft finally clotted off.

Evans et. al.[30] noted hemodynamic deterioration of failing grafts after an early hyperemic phase; none had an identifiable cause for failure other than poor runoff and none of the revised grafts after occlusion were salvaged. Kupinski et. al.[31] noted the increased production of thromboxane in the postoperative period after limb revascularization that peaked in the fifth day. It could be the cause of severe vasoconstriction and vasospasm, increased permeability and edema[32] or a marker of progressive reperfusion injury. Reperfusion injury has been more commonly associated with acute ischemia,[33-35] but also has been mentioned a a sequela of critical chronic ischemia.[36-37] Therefore it may be the cause of some unexplained early graft failures, especially after the acute ischemic event associated with arterial clamping needed for revascularization.[38] The endothelial swelling and capillary block with it's non reflow phenomena[33] may decrease flow to a subcritical level causing thrombosis of the graft and the distal vasculature with severe acute ischemia.

Conclusion:

At present, surgical treatment is undertaken in increasingly complex clinical situations with acceptable results of graft performance and limb salvage. However a detailed study and understanding of the unique factors that influence graft performance is in order since an improvement in early patency and graft surveillance with revision in the follow up will have the most decisive impact in achieving our goals of preserving the limbs and improving the quality of life for these patients and their relatives.

Resumen: **Se revisaron todas las reconstrucciones arteriales de las extremidades inferiores que incluyeran un injerto de vena como único material o en combinación con material sintético, por un periodo**

Table III.
Lower Extremity Revascularization with Vein Grafts
Cause of Graft Failure and Outcome

Early (<30 days)	No. Failed	Amputation	Secondary Patency	Limb Salvage
Inadequate Vein	3	0	2	3
Technical Factor	2	0	1	2
Primary Thrombosis	1	0	1	1
Poor Run Off (subjective)	4	2	0	2
Undetermined	7	7	0	0
Subtotal	**17**	**9**	**4**	**8**
Late (>30 days)				
Vein Lesion or Small Size	12	1	6	11
Poor Run Off	13	6	0	7
Subtotal	**24**	**7**	**6**	**18**
Total	**42**	**16**	**10**	**26**

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de cinco años la patencia primaria acumulada fue de 91% a 30 días, 80% a un año, 75% a dos años y 70% a tres años y medio. El 74% de los pacientes fueron diabéticos. Las causas de fallo tempranas incluyeron vena inadecuada, factores técnicos, enfermedad distal avanzada y factores no determinados que pudieran incluir espasmo arterial y daño de reperfusión.

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Original Articles:

Laser Assisted Surgery: The San Pablo Experience

Radhames Reyes - Tineo M.D.

Key Words: *Laser in Surgery*

Abstract

Two thousand plus (2,000+) assisted laser surgical procedures were performed between July 1986 and November 1993. Multiwavelenght specialties: Argon, CO2 and Nd.YAG usage include: general surgery, thoracic surgery, neurosurgery, ophtalmology, and gynecology. 65% of the patients were female whose ages range from 6 to 105 years. Endoscopic vs. handheld procedures ratios 1: 1. In 95% of the cases attended, the procedures were performed for benign conditions. The office hospital usage distribution was 60 - 40%. The office morbidity was 0.8% (16 out of 2,000 cases) and a mortality of 0.15%(3 out of 2,000 cases). A reported 100% *safety* compliance was seen. Laser assisted surgery is a safe, effective and reliable option available to the surgeon's armamentarium. It appears that in some procedures it will allow shorter hospital stays and an earlier return of the patient to his/her normal routine.

Resumen: **Se reporta un estudio de 2,000 casos en donde energía tipo laser se utilizó para asistir la intervención quirúrgica. La morbilidad y mortalidad fue aceptable. Se concluye que cirugía asistida con laser es segura y efectiva. Es posible que en algunos procedimientos se acorte la estadía en el hospital.**

Introduction:

Since the laser invention by Dr. Theodore H. Maiman in 1960, it has found widespread application in the fields of defense, communications, industry and medicine. It is the single most important advancement in surgery in the 20th century and the incorporation of minimally invasive operative techniques have increased it's potential in patient care.

In today's acutely cost-conscious hospital environment, lasing will have to be justified versus less costly alternatives. Those using laser on a daily basis find it difficult to expose their patients to a less than optimal option. Literature regarding alternatives to laser use is full of controversy. Advocates properly trained and frequently using it, when available at their institutions, find it difficult to reverse to familiar methods of treatment. Yearly new techniques are developed with broader indications and applications in surgery.

In the United States, less than 12% of surgeons use lasers frequently being the common denominator "lack of resources" in their workplace, and in Puerto Rico those figures are below 2%. Additional reasons are:

I. High cost of hardware and accessories
II. Necessary additional training for physicians
III. Unproven results in traditional literature in newly "minimally invasive" procedures with "similar" outcomes.
IV. Unequal Hospital / Physician Reimbursement policies by HFCA to Puerto Rico, producing ethical, medical, and health policy questions.

Furthermore, laser provides a multidisciplinary and multispecialty modality as well as therapeutic options where such choices did not exist or were limited previously.

In this paper we have reviewed in a retrospective fashion all surgical interventions in which laser therapy was employed in our institution during a little over 7 years.

Patients

All data was obtained through operating reports and diagnosis between July 1986 and November 1993 with two thousand plus cases in either Office - Hospital. The distribution was 60-40% favoring office. Wavelength multidisciplinary utilization is described in Table 1.

Table 1
Laser Types and Parameters

LASER TYPE	POWER	MODE	SPOT	% CASES
CO_2 Laser 100W	5-80W	CW	0.3 - 0.5m	40
Nd: YAG Laser 60W	20-60W	CW	0.2 - 0.4m	60
Argon Green Laser 2W	0.5W	PW	200 - 500m	100

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The Neodymium: YAG laser was the most frequently used being followed by the CO2 and by the Argon laser. In YAG endoscopic versus handheld procedures, laser usage ratio was 1:1, gynecological and neurosurgical procedures were performed with a C0 laser alone. Thoracic surgical procedures used Neodymium YAG laser with 100% non contact mode General surgical service laser usage was 95% of the total procedures with 60% Neodymium YAG was used versus 40% CO2 laser.

The diagnosis and the most frequent procedure performed by multispecialties are shown in Table 2.

Table 2
Specialty Case Distribution

SPECIALTY	NUMBER CASES	PERCENT
General Surgery	1,898	95%
Ophtalmology	71	3.6%
Thoracic Surgery	19	1%
Neurosurgery	7	0.35%
Gynecology	5	0.25%

The morbidity and mortality rates are shown in Table 3. Morbidity rate is 0.8% (16 out of 2,000 cases) and mortality rate is 0.15% (3 out of 2,000 cases).

Table 3
Morbidity and Mortality

TYPE	TREATMENT	NUMBER
Bilomas	2 Drained Open/ 1 CT Guided Drainage	3
Recurrent Inguinal Hernia	1 Lapa/1 Open	2
Breast Abscess	1 & D	2
Recurrent Anorectal Warts	Redo	2
Intestinal obstruction SB	Laparoscopy/Exp. Lap.	1
Keloid	Redo (1)	2
Gastric Outlet Obstruction	Redo	1
DIC Post Gastrectomy	Redo (Died)	1
Pneumothorax (Post miles Operation)	Died	1
Intraoperative MI (Miles Operation)	Died	1
Total Morbidity	0.8% (16 out of 2,000 cases)	
Total Mortality	0.15% (3 out of 2,000 cases)	

All safety measures and compliance are described in Table 4. There is great concern in electrosurgical and laser plumes management in view of infectious disease transmission, and particle matter composition in those plumes, since only 15% of this mater is known to the spectrum analysis. OSHA recommendations for plume care in all cases is a closed high suction device with a disposable filter.

Table 4
Safety Measures and Compliance: Laser Log

CONTROL MEASURES	COMPLIANCE
Warning Label Patient Protection Alignment Control Panel Reflection Combustible Material/Fire Mask Wetsponging/ Rectal Lumen	100%
Eye Protection	Open procedures 100% Endoscopic Filters with Video Only Pts.
Smoke Evacuation	Open Procedures 100% Endoscopic Procedures 100% Filter Wall Suction

Conclusions

Lasers are here to stay, in spite of cost containment issues. This technology will be in the near future, available to surgeons which will result in less invasive surgical procedures. Everyday new technological developments take place in medicine, like, for example more endoscopical procedures with sutureless anastomosis, using biodegradable materials, vital glue, laser, imaging, and robotics, etc. Preventive medicine will be "cost effective", but with a more technological approach in the next century. The only way medical advances can take place effectively is by using the new technology that is being developed in all fields. It would be devastating to insist on using old methods and familiar treatments. We must keep an open mind to these new developments.

Acknowledgments

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Changing Trends in Adenotonsillectomy at San Pablo Hospital 1983 vs. 1993

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Abstract:

The purpose of this paper is to review the changing trends in Adenotonsillectomies performed in San Pablo Medical Center during the last ten years. We have reviewed using a 25 variable questionnaire all patients undergoing this surgical procedure during the first six months in 1983 and compared the information with the patients having this procedure during the first six months of 1993. We conclude that the number of interventions, the indications, prior medical history and cost effects have changed substantially. Our data supports the accuracy of some of the trends being reported in the literature regarding this surgical intervention.

Resumen: **Se ha revisado la experiencia institucional de cirugía de amigdala y adenoides en los últimos 10 años. Nuestos resultados reflejan que el número de intervenciones, indicaciones de las mismas, historial médico pasado, y costo efectividad de estas intervenciones ha cambiado en los últimos años. Nuestros datos sostienen algunas de las conclusiones reportadas en la literatura quirúrgica.**

Introduction:

Surgery of the tonsils and adenoids remains the most common major operation performed in children today(1). Because of this fact, there is a general impression that a substantial number of Adenotonsillectomies are performed. Several reviews suggest the contrary, that is, T & A are being performed in a lesser number today. In the United States the number of T & A dropped from 1,400,000 in 1959 to 500,000 in 1979(2). In 1990 slightly over 300,000 were reported(3).

Fry in 1957 questioned the necessity of T & A and stated that "Tonsillectomy has at some time been recommended for almost every disease of children". In the last 30 years T & A has become an operation with very specific medical indications, indications which have continuously evolved during the last 15 years. Recurrent infections remains the main indication for T & A. Obstructive symptoms account for a increasing number of these surgeries today (5,6).

Cost control efforts, hospital reimbursement s fees and third party payers have pressured the medical community to limit the continuous trend of incrementing medical costs. Not very long ago, T & A were performed as a two day hospital admission. In the past 10 years, this has changed to a one day stay. During the last few years the trend toward outpatient surgery has been firmly established (7).

With issues in mind, we decided to examine in a retrospective fashion the San Pablo Medical Center experience regarding Adenotonsillectomy's.

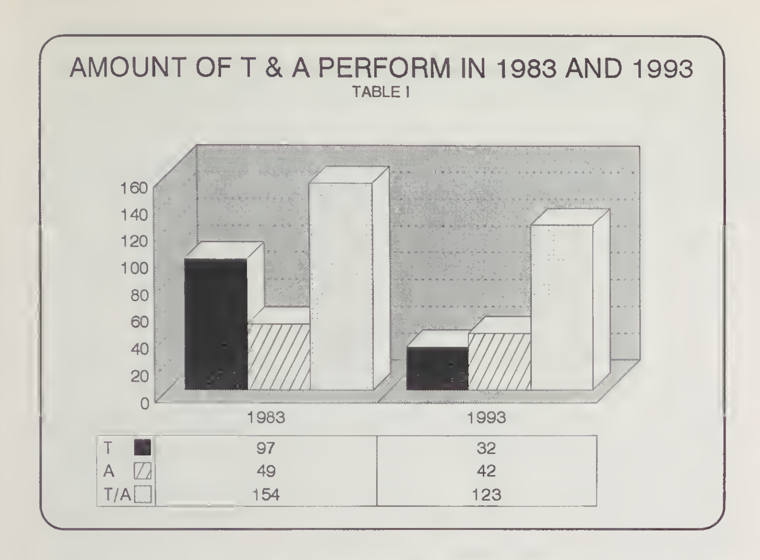
Material and Methods:

The medical records for all pediatric patients undergoing T & A during the first six months of 1983 and 1993 were reviewed. A twenty five item protocol was designed mainly to address four major questions. Amount of procedures performed, average hospital stay, indications and changing trends as it relates to the above. The patients undergoing tonsillectomy or adenoidectomy alone were evaluated but separated from the other T & A interventions. Patient undergoing T& A with myringotomy or tympanotomy with ventilation tube insertion were included. T & A performed with other pediatric surgical interventions at the same time were also included. All the surgical and anesthesia was done by attending staff physicians. All patients had a CBC (Complete Blood Count), U/A (urinalysis), PT (Prothrombin time), PTT (Partial Thromboplastin time) and Chest X Ray as part of the hospital admission.

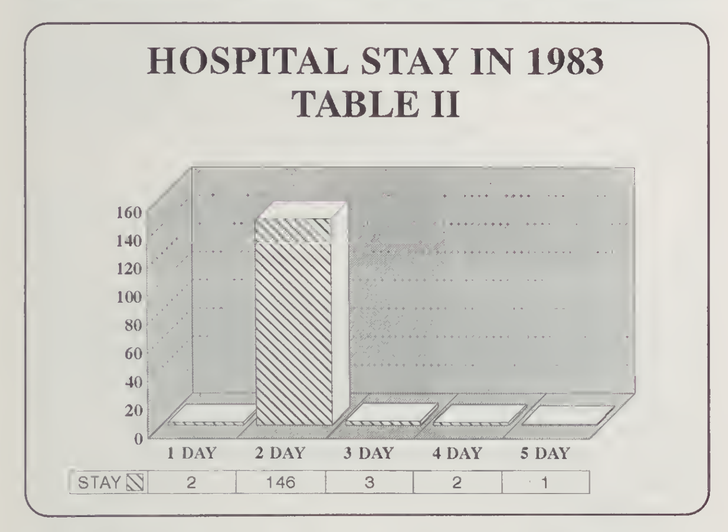
Results:

The number of total interventions during 1983 was 300 cases as compared to 197 for 1993. When we specifically look at T & A for 1983, 154 cases were documented and for 1993, 123 cases. (Table 1) In 1983 there were only two otolaryngologist surgeons in the institution who performed all the surgery, while in 1993 four otolaryngologist were present. Despite the increasing number of attending staff in the institution, the number of surgical interventions decreased during this ten years period.

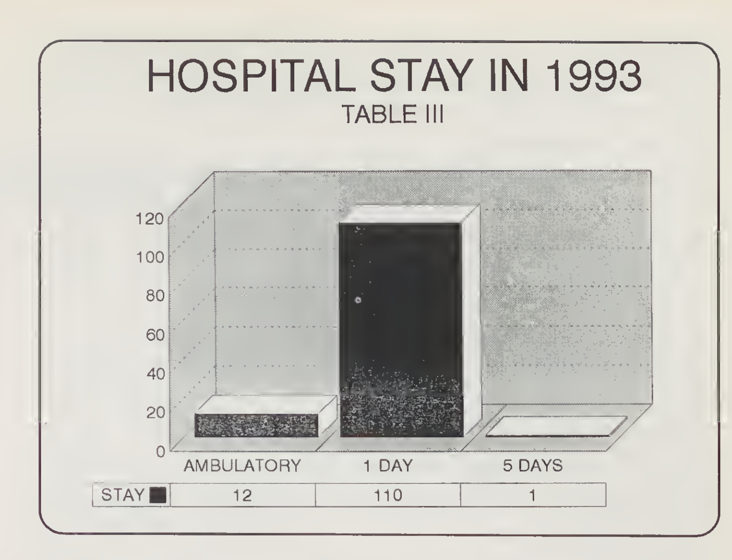
Section of Otolaryngology Head and Neck Surgery,Department of Surgery.



In the 10 years period, the patient hospital stay changed dramatically. In 1983 most patients (146) stayed two days, while in 1993 the majority of patients (110) stayed one day and additional 12 patients were operated as outpatients. (see Table 2, 3). Gender distribution was similar in both years. In 1983, of the 154 patients, 74 were males and 80 females. The age range extended from 1 to 13 years of age, with a mean age of 4.7 years of age. Of the 123 patients operated in 1993, there were 70 males and 53 females. Are ranged from 1 to 18 years of age with a mean age of 4.1 years of age.



The indication for surgery in 1983 included the following; 106 Chronic Adenotonsillitis, 24 Chronic Adenotonsillitis with Otitis Media, 17 Chronic Obstructive Adenotonsillitis and Otitis Media, 3 Chronic Adenotonsillitis with another surgical procedure. (One Tongue tie, one phimosis and one with fusion of labia minoris). The range of surgical indications for 1993 included 54 Chronic Adenotonsillitis, 23 Obstructive Adenotonsillitis, 18 Chronic Adenotonsillitis and Otitis Media, 9 Chronic Obstructive Adenotonsillitis, 9 Obstructive Adenotonsillitis and Otitis Media, 10 Chronic Adenotonsillitis and other surgical diagnosis. (4 Tongue Tie, Three Vocal Card nodule, 1 Sinusitis, 1 nasal polyp and 1 Cyst.)



In 1983, there was only one patient with a documented adenoid hypertrophy with soft tissue x ray of the neck, while in 1993 there were 37 cases documenting enlarged adenoid or tonsilar tissue. Regarding the health of the patients in 1983 there were 24 patients with asthma, 6 with heart murmurs, 4 with history of Croup. 3 febrile seizure, 2 prior Adenoidectomy, and one patient with a history of glomerulonephritis, Rheumatic Fever and Ventricular Septal defect. In 1993 the findings were striking with 53 patients or 43 percent with a history of asthma, 4 with history of heart murmur, 3 febrile seizures, 2 epilepsy, one each with croup, laryngomalacia, hydrocephaly, thrombocytopenia and 1 with allergy to Succinyl.

In 1983 recurrent tonsil infection was the main symptom. In 1993, snoring, mouth breathing and otitis media were responsible for almost half of the cases.(48%) Antibiotic prophylaxis was given in both periods in 99 percent of the cases. In 1983, 83 got amoxicillin, 49 ampicillin, 14 erythromycin, 2 penicillin, 2 cefadroxil, 3 cefaclor, 1 cephalexin, and one none. In 1993, 104 cefaclor, 16 amoxicillin, 2 erythromycin, 1 ampicillin.

There were no reported deaths, but complication occurred eight times in 1983 and four in 1993. In 1983 there were 3 patients with post operative bleeding, two requiring hospital readmission. Two cases with asthma, and one patient with croup, one with fever and one with poor eating secondary to pain. Six patients suffered a longer hospital stay as resulted of these complications. (from 2 to 4 days). There were four complications in 1993. One patient developed asthma, 2 patients with important adenoid bleed. One of these patients required a one day admission and the other 5 days. There were no blood transfusion in either period.

Discussion:

The findings in this report establishes the trend of T & A surgeries in San Pablo Medical Center during the last 10 years. Our results are quite consistent with the literature reports regarding the indications, costs and

results of this surgical intervention. The driving force behind these changes are likely multifactorial with a number of these factors being felt throughout - out the medical community.

Cost control has been an important factor. It can be recalled that not long ago Cataract Surgery was performed as a inpatient procedure. Today it is mainly an ambulatory procedure. Similar to this, the trend toward T & A is towards ambulatory surgery. The major medical concern against the establishment of T & A as an ambulatory intervention has been patient safety. The fact that T & A is for all effects an airway surgery with a distinct bleeding potential and the fact that most of the patients are children raised a number of safety issues. Most studies would argue, however, that the ambulatory intervention is just as safe as the inpatient one.(7).

In Puerto Rico there has been some concern regarding the safety of T & A because of home to hospital distance issues, emergency access to the hospitals and the poor socio-economic level of some of our patients. In a study by Helms (2) the ambulatory feasibility of performing T & A was established.

The reasons behind the decline in frequency of the T & A in this decade have been well summarized by Dr. Byron Baily (8) past president of the American Academy of Otolaryncology Head and Neck Surgery. In a editorial comment, Dr. Baily states, several factors are responsible for the decline in the number of T & A's being performed. First, there are very specific indications for T & A, Second, better informed patient's and parents regarding T & A, third the tightening of the approval by third party payers along with their policy regarding second opinion. Finally, there's been an important impact from the increase in malpractice litigation. This has influenced some otolaryngologist to decrease the volume of T & A's performed, but more important has virtually eliminated the many procedures previously done by general practitioners, pediatricians and general surgeons.

The new trends require a special combined effort by the Otolaryngologist, Pediatritian, Anesthesiologist, Nurses and the Hospital's Administration. The effort from our staff has been the search of new techniques that are safer, faster and less morbid. Over sixty percent of the patients operated in the 1993 period were operated with "The Bovie's Technique" (9-10) or electro cautery. This technique allows the surgery to flow faster, causes significant less bleeding, decreases the duration of anesthesia and causes less morbidity.

The Hospital administration efforts include, the training of nurses for one day and outpatient surgery. The administration creates efficient surgery units, stream line processes for hospital admissions, laboratory and X Rays. Ambulatory surgery staff gives follow up calls to patients, 24 hours after surgery to identify potential problems as early as possible. This combined efforts has helped to keep complication low.

The most surprising result of this study has been the significant increase in sicker children with pre-existent medical problems in the 1993 group. Forty three percent of the patients operated during year 1993 had asthma. The Anesthesia Department has modified the anesthesia protocol in efforts to ameliorate complications related to this fact. The use of steroids and the use of respiratory therapy before and after surgery at the Recovery Room, are examples of some of the changes in this protocol.

The pediatrician efforts have been the prompt recognition of patient with problems amenable to surgical improvement. More pediatricians are aware of children with obstructive problems, and recognize the potential health hazards of the disease, like obstructive Sleep Apnea (OSA). They provide close follow-up pre and post operative.

Conclusions:

1. Less Adenotonsillectomy are being performed today at San Pablo Hospital.
2. The Hospital stay has been reduced to half with a trend toward ambulatory surgery.
3. Surgery is being performed less for infectious reasons and more for obstructive reasons.
4. There is a significant increase of sicker children.
5. Antibiotic prophylaxis has changed from Ampicillin to a Cephalosporin.
6. Complication rate has remained very low.
7. The trends in practice of the section of Otolaryngology Head and Neck Surgery at San Pablo Hospital are in pace with the current practice of otolaryngology today.

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Group B Streptococcal Disease in Pregnancy

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Abstract:

Group B Streptococcal(GBS) infection in the pregnant female represents a challenging and often complex scenario which may cause deleterious effects in the neonate. In this paper we present three case reports of GBS infection in neonates with different outcome. A comprehensive review of the history, microbiology, clinical presentation and therapy guidelines is presented. Early diagnosis and institution of therapy are the most important factors which may have an impact on maternal and neonatal outcome.

Resumen: **Se presenta un recuento de la historia natural, incluyendo la microbiología, presentación clínica y manejo de infecciones con Streptococo Grupo B en la mujer embarazada. El artículo incluye la presentación de tres casos clínicos con esta infección. Se emfatiza que el diagnóstico temprano con terapia adecuada son los factores que pueden tener un impacto positivo en el curso de esta enfermedad.**

Inroduction

Historical Background

Streptococci were first described by Louis Pasteur in the 19th century.[1] Rebecca Lancefield in 1933 using serological techniques sub-divided the B Hemolytic Streptococci into specific groups which she named A, B, C and E. Group B streptococcus (GBS) was sub-divided into three serotypes I,II,III.[1,11,17] Type I was later subdivided into la. Ib, Ic. These last three serotypes are today known to be responsible for the often serious and occational lethal prenatal infections. [1,7]

The potential pathogenicity of GBS was ignored for many years. In 1960 Hood reports serious infections throughout pregnancy with GBS associated with high rate of infant mortality.[1] In 1964 Erickhoff published a series of GBS cases, commenting on the virulence of this bacteria.[1] An increasing number of reports followed in the obstetric and pediatric literature documenting the growing relevance of GBS with neonatal sepsis and/or meningitis.[1,3] Today GBS has replaced Escherichia coli as the most frequent microorganism associated with bacteremia or meningitis among infants during the first 2 months of life.[11] Baker estimated that there were 12,000 to 15,000 newborns with GBS infection annually with a 50% mortality. The cost of providing the necessary health care to these infants in 1985 was approximately 726 million according to the National Academy of Science.[1] In October 1992, the Group B Strep Association (a non profit patient's advocate group) in conjunction with The American Trial Lawyers Association, issued a combined alert concerning the value of antepartum cultures and the potential prevention of Group B Streptococcal infections with early therapy[1]

We present several case reports of patients with this disease followed by a review of current management guidelines for GBS. The importance of this pathogen in neonatal infections and the fact that timely diagnosis and early therapy may alter the natural history of the disease is recognized.[2]

Case Reports

Case I

A 23 y/o female G III PII AI with an expected date of delivery on September 30, 1981. On September 30, 1981 she is admitted to our institution. She had ruptured membranes at 10:30 AM that day. The cervix was 5 cms dilated, effacement 90%, Station - I. The amniotic fluid was clear. Two hours later she delivered a male baby with Apgar Score 8/9, the birth weight was 6 pounds and 1/2 ounce. The baby was placed in incubator due to mild respiratory distress and F_1O_2 was set at 30%. The initial impression was Transient Tachypnea of the newborn (TTN); a chest plate reported a bleb in left lung, otherwise negative. The baby was started in antibiotics with Ampicillin 110 mg IV q 6 hr and Garamycin 7.5 mg IM q 12 hr. His condition was worsened and at 3:00 a.m. developed respiratory failure followed by a respiratory arrest. Life support measures were unsuccessful and was declared dead at 16 hours of life. Blood cultures reported abundant growth of Group B Streptococcus. Autopsy reported evidence of bilateral bronchopneumonia with pulmonary hemorrhage. The heart showed few petechiae in epicardial surface.

Case II:

A 20 year old G 11 PI AO with an EDC for November

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4, 1982. She was admitted to Hospital San Pablo on October 27, 1982 in early labor. On October 28, 1982 at 3:40 a.m. she delivered a 6 pounds 12 oz baby girl, one hour thirty five minutes after amniotomy. The Apgar score was 9/10. Roughly at 4:05 a.m. the baby starts with grunting and subcostal retractions. He is found with a respiratory rate of 52/min and with mild cyanosis. The diagnostic impression was Transient Tachypnea of the newborn (TTN). The baby's condition got worst during the night, developing frank metabolic acidosis with mild C02 retention. In the ensuing hours frank respiratory failure developed followed by death. The inital chest x ray was negative, followed by a repeated film showing a diffuse infiltrate in the entire lung. A gram stain of the vaginal secretions showed abundant gram positive cocci suggestive of Group B Streptococci.

Case III:
A 31 year old female with GIV P II A I with an EDC for October 3, 1986. On September 25, 1986 she was admitted for her third cesarean section. She had history of a late abortion on September 2, 1984. She was admitted on this occation with vaginal bleeding and spiking fever up to 39.4°C. She had a good response to Ampicillin and Garamycin. Two days after the cesarean section, she developed a high spiking febrile course. She was started in Penicillin and Garamycin. GBS was cultured in blood. She was discharged asymptomatic after 10 days of antibiotic therapy. The baby did well in the Nursery; her blood cultures were reported negative.

A. Incidence

The disease is divided into two groups. The first is "Early onset Disease"[2] and affects about 3/1,000 live births. The incidence climbs to 10/1,000 for mothers with perinatal vaginal colonization and to 40/1,000 (1/25) if additional risk factors such as prematurity, prolonged rupture of membranes, amniotic fluid colonization. maternal fever during labor or an infected prior child. The second group is "Late onset Disease"[2] and occurs when GBS infection is seen after 48 hours of life up until 12 weeks of age. In this group Meningitis becomes an important part of the clinical syndrome.

B. Microbiology

As with most infections the Gold Standard for diagnosing maternal asymptomatic genitourinary or lower digestive tract colonization with GBS is the Culture.[1,11]

Streptococcus agalactie (GBS) is a facultative diplococci. Colonies are gray white in color, flat and mucoid. One percent of GBS isolates are non hemolytic or alpha hemolytic, thus definite microbiologic identification requires Serologic techniques to determine the Group B antigen. The Gram Stain is the most effective for detecting heavy vaginal colonization, but is ineffective in detecting light colonization. It is ineffective in detecting GBS carriers. Light colonization causes as much as 50% of Neonatal Infection. [1,11]

C. Serologic Classification

Lancefield classified the Group B Streptococcus in subtypes I,II,III. Type I was then subdivided in I_a, I_b, II and III. Babies of mothers who lack antibodies toType II and III are more susceptible to develop early onset disease. Babies of mothers who lack passively acquired immunity to Type III develop late onset disease. Higher levels of antibodies seems to protect against infection. Eighty to ninety percent of adults have low levels of this antibodies.[1,10,18]

D. Epidemiology

GBS colonizes the lower digestive tracts of 15-35% of humans. It is found in males and females of all ages from infants to elderly.[1] From the lower intestinal tract, the bacteria intermittently colonizes the genital tract and less frequently the urinary tract.[1] Anorectal cultures are essential in identifying the carrier.[1] GBS is less likely to be found in the cervix.[1-3,11-12] Cultures taken in lower third of vagina and rectum yield the better and most reliable results.[1-3,11-12] Vaginal colonization is intermittent. Anorectal carriage is more constant.[1-3,11-12] Twenty percent of women with negative vaginal cultures in midgestation have positive vaginal cultures at term.[1] Ten percent of women with negative anorectal and vaginal cultures during gestation have positive vginal cultures at term.[1] Seventy percent of infants found colonized at birth will have the same serotype found in the mother.[1]

One to two percent of colonized infants developed GBS disease.[1] Nosocomial transmission is a frequent source of infant colonization. The incidence of colonization has marked ethnic and geographical variations. GBS colonization appears to be higher in minorities including hispanics where a prevalence of up to 25% has been reported. GBS colonization appears also to be higher in women with lower education and women with multiple sexual partners.

E. Clinical Manifestations

1. Neonatal Disease

Early Onset Disease

Clinical disease in most infants is manifested at birth or within few hours afterward. It is caused by potent toxins that lead to destruction of the pulmonary architecture as well as myocardial depression, pulmonary vascular spasms, pulmonary hypertension and systemic chock. The physiologic response to GBS is an out pouring of inflammatory cells into the lungs.[1] The activated white cells release enzymes that lead to pulmonary destruction, leaky pulmonary vessels and

cardiovascular collapse. It is now accepted that most GBS infection are acquired in utero via a vertical transmission.[1] Some infants acquire the infection at birrth, but this mode of transmission is less common. Forty percent of lethal infection occur despite intact amniotic membranes.1 The three major presentations in early onset GBS infection are sepsis, pneumonia and meningitis. Meningitis is present in approximately 30% of early onset disease.[11]

Respiratory symptoms and signs such as grunting, tachypnea, apnea, and cyanosis are the earliest clinical findings, hypotension occurs in 25%, pneumonia is present in 40% of infants.[11] In fulminant forms septic shock accompanied with respiratory distress leads to death within several hours despite appropriate antibiotic therapy.[11] Mortality rate is approximately 55% to 70% in this group of patients.[11] Fatal outcomes have been correlated with low birth weight and preterm neonates. Ten percent GBS mortality occurs in full term infants with no risk factors for infection.[11]

Late Onset Disease

Late Onset Disease occurs more insidiously and ussually seen after the first week of life and up to 12 weeks of age. The majority of these infants have meningitis as the prominent clinical manifestation. The presenting symptoms are fever, irritability or lethargy and poor feeding. In 20-30% of cases, upper respiratory tract symptoms may be present. Mortality is lower (15-20%) in this group.[1,11,14] Fifty percent of these babies subsequently demonstrate neurologic sequelae. More that 90% of late onset disease are due to Type III GBS.

Nosocomial transmission with cross colonization from other infants has been the source of infection.[16]

2. Second and Third Trimester Fetal Loss.

Fetal death in the second and third trimesters are associates with heavy colonization as manifested by GBS colonization of the urinary tract. (GBS bacteriuria). Second trimester infection may be secondary to premature cervical dilatation, heavy vaginal colonization or lack of immunity to GBS in the mother.

3. Maternal Disease

GBS colonization in the fetus may not be clinically apparent with the mother but it may cause severe maternal intra-partum disease. The majority of maternal infections are manifested as endometritis usually associated with cesarean delivery. A rise in temperature usually occurs during the first 12 to 48 hours after delivery. Intrapartum disease is revealed by clinical signs of chorioamnionitis with fever, chills, tachycardia and uterine tenderness. Occationally pelvic thrombophlebitis or endocarditis may be seen.[1-3,11] Diabetic patients are susceptible to Group B Streptococcus endocarditis. Colonization of the urinary tract may be a sign of heavy colonization in vagina and rectum. These patients are more prone to pyelonephritis, premature rupture of membranes, preterm labor and intrauterine fetal demise.[1]

F. Diagnosis

The culture is the best criterion for diagnosis of GBS.[11] Symptomatic maternal genitourinary tract infection with GBS may present with fever, chills, uterine tendrness, dysuria, urgency, and pyuria.[1-3,11] The diagnosis must be confirmed by isolation of the micoorganism. It takes about 24 hours to 48 hours get an adequate report.[1] In the neonate gram stain of amniotic fluid, gastric aspirate, tracheal aspirate will show predominance of gram positive cocci. The great majority of colonized infants are asymptomatic (98-99%) at birth and thus the diagnosis requires culture identification of the bacteria, sampling should include the umbilicus, throat, external auditory canal and rectum. None of the clinical manifestations of neonatal disease is sufficient to diagnose GBS in the absence of a positive culture.

A number of rapid tests for the diagnosis of GBS have emerged.[1-3,11] These tests have a negative predictive value of 98%. The positive predictive value is poor; approximately 28%. They are valuable for the detection of heavy colonization. Rapid tests identify the presence of GBS antigen by several techniques which include coagulation and latex agglutination.

The prevention of early Onset Neonatal Group B Streptococcus Infection can be accomplished by screening all pregnant women for GBS at 26 to 28 weeks gestation. Positive females may be subjected to Chemoprophylaxis hoping to eradicate the genital tract from GBS and thus avoid perinatal exposure.[1-4,8,5]

G. Treatment Guidelines

Antepartum Treatment

Antepartum treatment of asymptomatic women regardless of maternal colonization status is not recommended except those with GBS in urine which is an indicator of heavy colonization.[1-3] These patients are at high risk for pyelonephritis, fetal death and preterm labor. GBS in urine is treated with a 7-10 days course of antibiotics; if the follow-up urine culture is positive, this patient should be suppressed for the duration of pregnancy.[1]

In women with a previous history of fetal loss, their antibody levels to GBS are usually low, the risk of another fetal loss or fetal infection is so devastating, that these women should receive prophylaxis through out gestation with oral penicillin (250mg twice daily) (PENVK).[1,3]

Intrapartum Treatment[1-4]

Many investigators have demonstrated the safety and efficacy of Intrapartum antibiotics. No infants of adequately treated mothers have developed this infection according to studies done in Australia and

North Carolina.[1,3] The American College of Obstetricians and Gynecologists recommends that mothers who are positive for GBS should be informed of their carrier status. If they receive the adequate education and counseling, they will prefer to be treated with antibiotics during labor.[1-4] Patients that are more likely to benefit from Intrapartum antibiotic Chemoprophylaxis include:[1-4]

a. Maternal colonization with GBS
b. Preterm labor <37 weeks
c. Proloned rupture of membranes; longer than 12 hours[1,3]
d. Sibling affected by symptomatic GBS infection
e. Maternal fever - more than 37.5°C[1,3]

Intrapartum intravenous antibiotics prevent mother to baby transmission of GBS colonization and early onset neonatal sepsis; it also decreases the rate of post-cesarean endomyometritis.[1-4]

Group B Streptococcus is particularly sensitive to Penicillin. It is also sensitive to cephalosporin, erythromycin and clindamycin. It is usually resistant to sulfa, tetracycline and metronidazole.[11] First and second generation cephalosporin have very good in vitro activity against GBS.[11]

Management of Infants whose mothers received antibiotics Prophylaxis[1,3,11,12]

This management should be based on an assessment of the infant's risk of sepsis as indicated by clinical manifestations and gestational age. Symptomatic infants born to women who received antibiotic prophylaxis should be evaluated for invasive infection caused by GBS and other causes of early onset neonatal infection; these infants should be treated with broad spectrum antibiotics while cultures results are pending. the additions of Gentamicin to one of the penicillins results in a synergistic action against GBS.[11] Ampicillin crosses meninges into cerebrospinal fluid.[11]; unfortunately neonatal treatment is ineffective because early onset disease begins in utero.[1-3] Antibiotics given less than one hour before delivery do not inhibit neonatal colonization. Once infection occurs high levels of antibiotics are necessary to destroy this organism.[3] In elective cesarean section patients that are colonized with GBS a full course of antibiotics should be given to obtain the optimum benefit. Asymptomatic term infants whose mothers have received therapy with one or more doses of Ampicillin (Ampicillin 2g or Penicillin 5mu) initiated more than four hours before delivery should probably not be treated.[3] Asymptomatic preterm infants of GBS colonized mothers with a gestation less than 34 weeks are candidate for empiric antibiotic therapy whether or not maternal chemoprophylaxis was given.[3]

In all cases in which antibiotic therapy is initiated, it should be administered for no more than 72 hours unless blood and cereboospind cultures are positive or unless subsequent clinical course suggests sepsis or pneumonia.[3]

Discussion

Group streptococcus may cause a serious disease that could terminate the life of an otherwise healthy full term baby. Manifestations of disease in the fetus maybe out of proportion to those of the mother. Screening of all pregnant women with cultures from lower third of vagina and ano-rectum at 26-28 weeks gestation and a rapid test at time of labor is considered by most as the best option to determine the need of maternal chemoprophylaxis during labor.

The following guidelines should be followed for antibiotic prophylaxis:

1. Maternal coonization with GBS.
2. Preterm labor less that 37 weeks.
3. Preterm premature rupture of membranes.
4. Prolonged rupture of membranes for more than twelve hours.
5. Sibling affected by GBS infection.
6. Maternal fever during labor more than 37.50°C.

GBS in urinary tract is an indicator of heavy colonization, a urine culture is indicated when this microorganism is reported in the vaginal culture. Antepartum treatment of GBS in the urinary tract to prevent pyelonephritis, fetal death and possible preterm labor is mandatory.

Early neonatal care should be conducted with high degree of suspicion for neonatal Group B Streptococcus infection. Early diagnosis and institution of therapy are the most important factors which will have an impact on outcome.[22]

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Manejo de Riesgos en la Industria de Hospitales

Milton L. Cruz, J.D., LL.M., M.H.S.A.*

Resumen: **El autor nos da una introducción sobre el manejo de riesgos en la industia de hospitales y nos resume en forma general los elementos básicos de un programa de manejo de riesgos en dicha industria. Además, el autor presenta y discute varios aspectos a evaluarse en un programa de manejo de riesgos en la industria de hospitales.**

I. Introducción:

El propósito de este artículo es ofrecer al lector una introducción general sobre el concepto de manejo de riesgos en la industria de hospitales.

La industria de hospitales, en años recientes, está adaptando los conceptos de manejo de riesgos que eran y son esenciales en la industria de seguros. Más aun, el Joint Commission on Accreditation of Health Care Organizations establece como parte de sus estándares de acreditación que la Facultad Médica de un hospital debe participar en actividades de manejo de riesgos. Véase a estos efectos el Accreditation Manual for Hospitals, 1993, Medical Staff, páginas 97-100.[1] Según Annas, et al,[2] por lo menos siete estados requieren que los hospitales cuenten con un programa de manejo de riesgos como condición para obtener licencia. Entre estos estados menciona los siguientes: Alaska, Florida, Kansas, Massachusetts, Maryland, New York y Rhode Island. Esta tendencia hacia el establecimiento de programas de manejo de riesgos hace necesario el que todo administrador de servicios de salud esté familiarizado con los principios básicos de un programa de manejo de riesgos.

Duncan, et al,[3] nos cita la siguiente definición de manejo de riesgos: "An organized effort to identify, assess, and reduce, where appropriate, risk to patients, visitors, staff, and hospital assets. It involves activities that are designed to (1) reduce the hospital's risk of a malpractice suit by maintaining or improving the quality of care, (2) reduce the probability of a claim being filed after a potentially compensable event has ocurred, and (3) preserve the hospital's assets once a claim has being filed".

El propósito básico de un programa de manejo de riesgos en un hospital es evitar pérdida económica a la institución mediante un proceso que consta de cuatro componentes. Estos cuatro factores fundamentales en un programa de manejo de riesgos son los siguientes, según comentaristas[4,5,6,7] en la materia:

1. Identificación de riesgo
2. Análisis de riesgo
3. Manejar o controlar el riesgo
4. Evaluar el riesgo

Veamos a continuación en más detalle los elementos de un programa de manejo de riesgos.

II. Elementos Básicos de un programa de manejo de riesgos:

Como se mencionara anteriormente, un programa de manejo de riesgos consiste de los componentes de identificación, análisis, manejo y evaluación de los riesgos. Los comentaristas[4,5,6,7] de manejo de riesgos en la industria de salud coinciden en la discusión de estos elementos básicos, incluyendo a Troyer & Salman.[6] Veamos los cuatro elementos de un programa de manejo de riesgos según los clasifica y explica en parte Troyer & Salman.[6]

A. Identificar el riesgo:

Identificar el riesgo consiste en reconocer situaciones (riesgos) que puedan causar pérdida a la institución.

En términos de identificación de riesgos el administrador del programa debe familiarizarse con la estructura organizacional de la institución, así como conocer los servicios que presta la institución. Es fundamental que se establezca un conocimiento sobre el historial de reclamaciones de la institución, así como el establecer un sistema de reportes de incidentes. Se debe fomentar que se reporten todos los incidentes u ocurrencias. Los empleados deben ser educados en cuanto a qué constituye un reporte de incidente.

En el proceso de identificar los riesgos el administrador debe estar consiente de unos indicadores que lo alerten sobre posibles incidentes. Además, en esta etapa de identificar el riesgo, el administrador debe establecer canales de comunicación con los distintos departamentos y unidades del hospital, para que éstas le mantengan al día sobre los incidentes u ocurrencias de la institución. En este sentido incluimos a los voluntarios, escoltas, comité de garantía de calidad y departamento de expedientes médicos.

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B. Análisis de Riesgo:

El análisis de riesgo consiste en la evaluación de las distintas situaciones u ocurrencias.En términos de análisis de riesgo, los mismos deben de ser estudiados, según Troyer & Salman,[6] analizando los siguientes factores:

1. La frecuencia probable de que ocurra una pérdida
2. La magnitud probable de la pérdida
3. La magnitud posible de la pérdida
4. El efecto que la pérdida potencial tenga en la organización

Varias instituciones han establecido un Comité de Manejo de Riesgos el cual tiene la función de ayudar al administrador de riesgos en el análisis de la información obtenida. Este comité de manejo de riesgos tiene ciertas áreas en que entra en los mismos análisis que el Comité de Garantía de Calidad. Sugerimos que este Comité de Manejo de Riesgos sea integrado por el Administrador de Riesgos del hospital, el Director Médico, el Presidente del Comité de Garantía de Calidad y el Asesor Legal. También recomendamos que este Comité de Manejo de Riesgos pase a ser un subcomité del Comité de Garantía de Calidad de la Facultad Médica y que así se establezca en las reglas y reglamentos de dicha Facultad.Claro está, cada institución debe analizar cual es la estructura que más conviene establecer desde el punto de vista de funcionalidad.

Griffith[8] describe las funciones de un Comité de Manejo de Riesgos como las siguientes:

-Epidemiological analyses of incidents (that is events in which a patient, visitor, or employee may have been injured) reported by nursing, medicine, or any supervisory personnel.

- Study and revisions of procedures to reduce hazards identified by epidemiological analysis, observation, or the reported experiencie of other hospitals.

- Compilations of the actions of various committees evaluating the performance of individual physicians in order to report to the credentials committee prior the annual review of privileges. This activity, which is likely to incorporate infection surveillance, is critical and requires cross-specialty participation."[8]

C. Manejo o control del riesgo:

En este factor el administrador de riesgo actúa para controlar, manejar, el riesgo. Según Sheila Hagg[7], el administrador de riesgos puede optar por manejar el riesgo mediante: 1) aceptación del riesgo, 2) evitar el riesgo, 3) reducir o minimizar el riesgo, o 4) transferir el riesgo.

Por ejemplo, en el manejo de riesgo se tienen que considerar los aspectos de controlar dicho riesgo así como de financiar los riesgos. El administrador de riesgos debe negociar con las compañías de seguro de forma eficiente para que el riesgo sea transferido a éstas al menor costo posible para la institución, cuando se opte por esta manera de controlar el riesgo.

D. Evaluación de riesgo:

Finalmente, el administrador de riesgos debe en forma continua, evaluar los posibles riesgos de la institución, y también evaluar la efectividad de el proceso de identificar, analizar y manejar los riesgos.[7] En particular se deben analizar las políticas y procedimientos institucionales y cerciorarse que se cuenten con los seguros adecuados.Además, se debe cotejar si las acciones que se han tomado para reducir y/o eliminar los riesgos identificados han tenido el resultado esperado.

III. Aspectos a evaluarse en un programa de Manejo de Riesgos:

Un programa de Manejo de Riesgos es de por sí uno abarcador. En un hospital se tienen que evaluar los aspectos de riesgos desde el estacionamiento hasta las salas de operaciones de la institución. Entre los aspectos más importantes se encuentran los siguientes:

1. Cumplimiento de leyes y reglamentación. Que la institución esté cumpliendo con la legislación aplicable a los hospitales tanto a nivel federal como estatal. En Puerto Rico es indispensable el cumplimiento de la ley que regula la operación de las facilidades de salud, ley número 101 del 26 de junio de 1965, según enmendada, y su reglamento número 51 del Secretario de Salud. Para aquellos hospitales certificados por Medicare las reglamentaciones federales de dicho programa son también importantísimas.

El número de leyes aplicables al campo de la salud es monumental. Recomendamos que los administradores de riesgos se mantengan al día en los aspectos legales. Una fuente de información adecuada en este respecto son los materiales que distribuye el American Society of Health Care Risk Management del American Hospital Association.

2. Consentimientos Ilustrados. Diariamente los administradores de riesgos se encuentran con situaciones relacionadas con la obtención del consentimiento ilustrado del paciente. La institución hospitalaria debe tener una política claramente establecida sobre este tema que en situaciones suele ser un campo de potencial problemas. Políticas específicas sobre el consentimiento en casos de Testigos de Jehová, casos donde el paciente rehúsa cierto tratamiento, y órdenes de no resucitar son algunos de los muchos ejemplos que podríamos mencionar. En este tema el administrador de riesgos debe cotejar el cumplimiento por la institución del Patient's Self Determination Act del 1990.[9]

3. Comité de Garantía de Calidad, Comité de Seguridad y Comité de Bioética. El administrador de riesgos debe participar, o por lo menos, estar familiarizado con lo que se discute en estos comités tan importantes.

4. Seguros. Es indispensable la familiarización con los distintos tipos de seguros con que cuenta el hospital y más importante el determinar o sugerir aquellos cambios que sean necesarios en los mismos.

5. Litigios. Los casos más frecuentes en los hospitales son generalmente los de impericia profesional y los de responsabilidad pública. El administrador de riesgos debe coordinar la defensa de estos casos con los abogados del hospital proveyendo proyectos de contestación a demandas, a interrogatorios, a requerimientos de admisión y sobre todo ayudar en la investigación del caso.

6. Facultad Médica. Se debe tener una buena familiarización con las Reglas y Reglamentos de la Facultad Médica del hospital. En algunos hospitales han ocurrido demandas basadas en que al tomarse una acción contra un médico no se siguieron las Reglas y Reglamentos de la Facultad Médica, en específico la sección que tiene que ver con el debido proceso de ley. La creciente aceptación de la doctrina de responsabilidad corporativa requiere que los hospitales, en forma independiente, evalúen la razonabilidad del proceso de credencialización.[10,11]

Hagg-Rickert[12] nos comenta que los siguientes tres factores han contribuido a que el administrador de riesgos tome un rol más activo en los asuntos relacionados con la Facultad Médica, a saber: expansión de las nociones de responsabilidad corporativa del hospital hacia los pacientes que sufren daño y los médicos a quienes se les deniegan privilegios, la aprobación del Health Care Quality Improvement Act del 1986[11] y el establecimiento del National Practitioner Data Bank.[11] Cada día se unirán a esta lista más factores que ameritaran un rol más activo del administrador de riesgos de un hospital.

7. Asuntos relacionados con la confidencialidad. Los asuntos relacionados con la confidencialidad del paciente así como la confidencialidad de los empleados son muy importantes. Se tienen que tener los mecanismos o procedimientos necesarios para evitar que por inadvertencia se viole la privacidad a estas personas.

8. Educación. El administrador de riesgos debe participar en los programas educativos que tengan que ver con los temas relacionados con manejo de riesgos.

No solamente se debe educar al personal del hospital sino que también hay que educar a la Facultad Médica. Según Veltman,[13] las siguientes siete áreas deben enfatizarse en un programa educativo dirigido a los médicos: 1- destrezas de educación, 2- el proceso de consentimiento informado, 3- destrezas de documentación, 4- manejo de resultados adversos, 5- evitar daños, 6- conocimiento del proceso legal, 7- evitar la apariencia de hostigamiento sexual.

Estos son solamente algunos de los temas con los que un administrador de riesgos debe estar relacionado. En muchas ocasiones será necesario y/o conveniente el consultar con un abogado que esté relacionado con la industria de salud. Algunas instituciones de salud han optado por incluir a un abogado como parte del equipo del programa de administración de riesgos. En corporaciones que poseen varios hospitales la organización de un departamento central de manejo de riesgos es recomendable.[14]

IV. Conclusión:

Como vemos, el establecer y mantener un buen programa de manejo de riesgo conlleva una integración de todos los componentes del hospital de tal forma que la información llegue al administrador de riesgo para que éste tome la acción que corresponda, y siempre que se pueda de forma preventiva.

Summary: **The author provides an introduction to the risk management process in the hospital industry as well as explains some of the basic elements in a risk management program in such industry. The author also explains the factors to be evaluated in a risk management program.**

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Sports Medicine:

Rehabilitation of the Patient with an Anterior Cruciate Ligament Injury: *A Brief Review*

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Introduction:

The anterior cruciate ligament (ACL) is an intra-articular structure essential for the normal function of the knee. Unfortunately, it is commonly injured during sports activities which involve complex movements such as cutting and pivoting. It has been reported that 70% of the acute ACL injuries are sports related.[1]

Treatment of the ACL deficient knee has been controversial. However, the importance of early diagnosis and appropriate rehabilitation cannot be overemphasized. The consequences of poor therapeutic results are well accepted and include episodes of recurrent knee instability, damage to associated knee structures such as the menisci, early progression to osteoarthritis of the knee, and an inability to return to previous functional levels of acitivity.[2] Recent developments in surgical techniques and agressive rehabilitation programs in combination have improved outcome measures.[3,4]

In the present paper we will review basic concepts of ACL structure and function, mechanisms of injury, and appropriate diagnosis which will serve as the basis for planning a rehabilitation program for the ACL deficient knee.

Anatomy and Biomechanics of the ACL:

The ACL is a collagenous structure approximately 38mm in length and 10mm in width. The ligament arises from a wide base in the tibia anterolateral to the anterior tibial spine. It then traverses the knee in a posterolateral direction attaching in a broad fan-like fashion at the posterolateral corner of the intercondylar notch of the femur.[5]

The ligament is made up of collagen fascicles organized in bundles or bands. It rotates on its axis 90 degrees giving the appearance of having two major bands; one anteromedial rigid in flexion and another posterolateral rigid in extension. Although this concept of two major bands describes the gross appearance of the ligament it is really an oversimplification for the ligament is a continuum of fibers inserting individually and creating a variable axis with no actual change in length. Rather, there is tightening of different components within the ligament through different phases of the range of motion making it biomechanically truly isometric.[5,6,7]

From the biomechanics standpoint the forces traversing the ACL have been studied using fresh cadaver specimens.[8] These forces, are highest in the last 30 degrees of extension and hyperextension and under several load conditions including, anterior tibial translation, internal rotation, and varus. The ACL is a static stabilizer of the knee. Thus, its primary function is to resist hyperextension, anterior tibial translation in flexion, and to provide rotatory control avoiding internal tibial rotation. It is also a secondary restraint opposing valgus and varus forces in all degrees in flexion.[1,9]

The blood supply to the ACL comes from the middle genicular artery a direct branch of the popliteal artery which traverses the posterior capsule of the knee joint at the intercondylar notch.[6,10] The ACL receives its innervation from the tibial nerve.[7] The presence of mechanoreceptors within the ACL have been reported by several authors.[11] These receptors may have a causal relationship to injury and recovery from cruciate ligament mishaps.

Mechanisms of Injury:

An acute ACL injury usually results from a sudden deceleration during high velocity movements in which a forceful contraction of the quadriceps muscle is required.[9] Injury to the ligament is also described as a result of a valgus stress and external rotation of the knee, severe internal rotation of the knee, or hyperextension with internal rotation.

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Diagnosis:

A rehabilitation program should be based on a specific diagnosis. A thorough history, an accurate physical examination and the appropriate diagnostic tests are required prior to starting treatment and rehabilitation.

The patient with an acute ACL injury usually complains of knee pain, the inability to continue participating in the sport activity and inmediate swelling following injury.[13] He may also give history of a "pop". Patients with chronic ACL defficiency complain of frequent episodes of knee buckling or giving way, and recurrent episodes of swelling.[2] These may be followed by an acute episode of knee locking secondary to an associated meniscal injury.

The physical examination should be performed in an orderly fashion. The examiner should observe the knee for asymmetry, palpate for areas of tenderness, measure active and passive range of motion, and document muscle atrophy. Special tests to rule out other pathology such as patellar subluxation, sprains of the collateral ligaments or meniscal injury should be carried out. Testing for the integrity of the ACL in the patient with an acute injury should include a Lachman test (figure1) and the pivot shift maneuver.[14] In the patient with chronic ACL insufficiency the anterior drawer test may also be used.

Diagnostic studies should include plain x-rays to rule out fractures and degenerative changes. Magnetic resonance imaging may be indicated particularly if associated pathology such as osteochondral fractures or meniscal tears are suspected.[15,16] Instrumented laxity testers have recently come into use to document in a reproducible manner abnormal ligamentous laxity.[17]

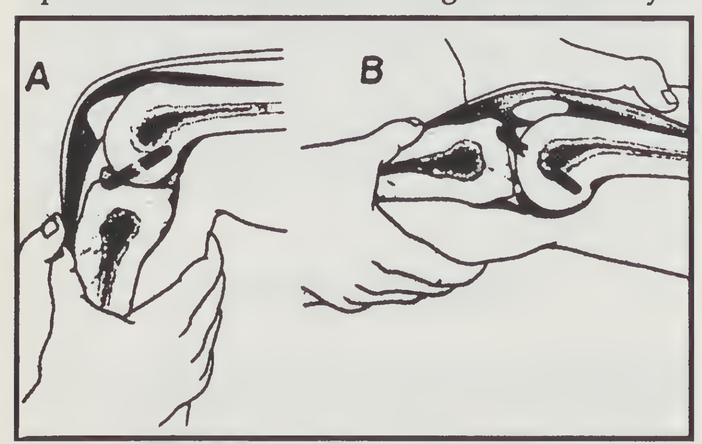


Figure 1. A. Anterio Drawer test. B. Lachman's Test (Modified from Garth.[14])

Natural History:

An untreated ACL injury can lead to changes in the knee join which may be associated with significant alterations in the patients lifestyle.[2,18,19] The patients which continue participation in strenous sports have recurrent episodes secondary to anterior laxity and rotatory instability. These may lead to damage of associated structures such as the meniscus and other secondary restraints. A significant number of patients develop joint space narrowing or unequivocal evidence of osteoarthritis.[18,19,20]

If the patient participates in a rehabilitation program and is willing to modify the activity level limiting sports involving cutting and pivoting maneuvers, the functional prognosis for daily living activities is good.[3,21] However, despite the completion of an adequate rehabilitation program, a number of patients may require surgical intervention because of continued symptoms with strenous activity.[3,21]

Surgical Management:

In the acute cases of the so called isolated ACL tear, it is very important to establish as soon as possible an accurate diagnosis of the associated injuries as these might necessitate prompt surgery. These include chondral or osteochondral fractures, meniscal tears, or other injured capsular structures. Generally, in the absence of the above, the acute management can be conservative with early protected rehabilitation.[3,9] When associated injuries are present, especially if these cause mechanical symptoms of locking, surgical treatment should be undertaken as soon as the initial inflammatory phase has passed.[22]

In the management of chronic ACL tear, other factors should be considered. The paramount symptom to be followed is instability of the knee with repeated effusion which is an indication of anterolateral rotatory instability. Surgery is indicated in patients with recurrent episodes of instability in activities of daily living and is also indicated in active recreational athletes who do not wish to modify their activities and are symptomatic. Surgery is definitely indicated in the high demand competitiv athlete.[23,24,25] It is to be understood that bracing provides only marginal protection and is not a substitute for surgery. The surgical procedure of choice is the endoscopic tendon autograft using the central third of the patellar tendon which provides the most rigid fixation and permits a more agressive rehabilitation program.[23,24,25] Another alternative especially in patients with patellar problems is using multiple strands of semitendinosus tendon as graft material. A less commonly used alternative, although at times necessary, is the use of patellar tendon cadaver allograft.[23,24]

Rehabilitation

General Concepts

The basic stages in the rehabilitation of the patient with an ACL injury are presented in table 1. This rehabilitation program should begin during the acute post-injury/post operative stage.[26] The objectives of this early intervention are to protect from further damage, to limit swelling, treat pain, maintain joint

motion, and prevent significant losses of muscle strength and muscle mass. This can be accomplished with limited motion, therapeutic modalities such as cold and electrical stimulation, medication, and static exercises. [26,27]

Table 1
Stages in the rehabilitation of the patient with an injury to the anterior cruciate ligament of the knee

Stage 1	Acute	Post-injury/Post operative
Stage 2	Sub-acute	Protected Mobilization
Stage 3	Long-term	Return to activity

Treatment of the symptoms in the acute stage is not the end of the therapeutic intervention. Progress to the second or protective mobilization stage of the rehabilitation program is mandatory as soon as the initial symptoms are controlled. The goals in this stage include the achievement of normal joint motion and flexibility, symmetric muscle strength and endurance, increased cardiorespiratory fitness, and improved proprioception and general skills.[27] The therapeutic modalities used in this stage should not place the injured knee at risk of further damage and protective bracing may be necessary. Therapeutic exercise is the most important component of this stage.

In the past, most of the muscle strengthening was performed using static (isometric) and dynamic (isotonic) open chain exercise in which the individual's distal segment is free to move. In the rehabilitation of the ACL deficient knee special precautions need to be taken to avoid excessive strain of the ligament with terminal (0-30 degress) extension quadriceps exercises.[28,29] Currently, the early use of closed kinetic chain exercises in which the distal segment of the extremity is fixed and the proximal segments are free to move is becoming more popular. These exercises allow quadriceps strengthening with hamstring muscle co-contraction without increasing the strain in the ACL and minimizing patellofemoral joint reaction forces.[28,30] In addition, exercising with the extremity in the ground may permit an early transition to functional activities.[30]

The final or return to activity stage of the rehabilitation consist of the training for acquisition of sports-specific skills. Prior to allowing the athlete to return to competition he should be able to perform under supervision the skills required in his sport in a symptom-free manner. A program for aerobic fitness, muscle strength and endurance, and flexibility should be continued in this phase.

Rehabilitation of the patient with a non-operated knee

The patient with a non-operated ACL deficient knee may present in the acute stage or with chronic recurrent injury. This means that the patients' complaints may be as diverse as a swollen, painful knee or an unstable joint with associated muscle weakness and atrophy. Therefore, the point of entry to the rehabilitation program and the progression will be different depending on the presenting signs and symptoms. In table 2 we present a rehabilitation protocol based on a literature review and our clinical experience. [28,31,32,33]

Table 2.
A rehabilitation protocol for the patient with a non-operated anterior cruciate ligament injury

A.	**Stage 1**	**Acute**	**Post-Injury**
	1. Week 1		
	a. Modalities		cryotherapy electrical stimulation
	b. ROM		active assisted flexion active extension 90 to 30 deg
	c. Strengthening		static extension (90 to 60 degrees) and straight leg raising exercises with simultaneous electrical stimulation static flexion exercises
	d. Ambulation		crutches, partial weight-bearing
	e. Brace		extension stop at 30 deg
B.	**Stage 2**	**Sub-acute**	**Protected Mobilization**
	2. Week 2-3		
	a. Modalities		superficial heat to periarticular structures as effusion resolves electrical stimulation cryotherapy post-exercise

(Continúa)

b. ROM	active assisted flexion active extension 90 to 30 deg
c. Strengthening	static extension and straight leg raising exercises with simultaneous electrical stimulation dynamic flexion exercises minisquats with upper extremity support
d. Ambulation	crutches, weigth-bearing to tolerance
e. Brace	extension stop at 10 deg (week 3)
3. Week 4-5	
a. Modalities	superficial heat to periarticular structures as effusion resolves electrical muscle stimulation cryotherapy post-exercise
b. ROM	active flexion active extension full arc
c. Strengthening	static extension (multiple angles) exercises with simultaneous electrical stimulation dynamic (PRE) flexion minisquats, step exercises
d. Ambulation	full weight-bearing, backward walking
e. Brace	0 degrees extension stop
f. Other	stationary cycling, pool exercises proprioceptive exercises
4. Week 6-7	
a. Modalities	ultrasound for contractures cryotherapy post-exercise
b. ROM	lower extremity flexibility program
c. Strengthening	dynamic eccentric extensors exercises dynamic (PRE) flexion minisquats, step exercises, leg press
d. Ambulation	full weight-bearing, backward walking
e. Brace	0 degrees extension stop
f. Other	cycling, slow running, swimming, proprioceptive training

C. Stage 3 — Long-term — Return to Activity

5. Week 8-12	
a. Modalities	cryotherapy post-exercise
b. ROM	lower extremity flexibility program
c. Stenghtening	dynamic (PRE) extensors and flexors exercises minisquats, step exercises, leg press
d. Ambulation	full weigth-bearing
e. Brace	functional brace with 0 degrees extension stop
f. Other	cycling, fast running, swimming, change of direction drills isokinetic testing

In the acutely injured knee, rehabilitation should be based on the general concepts described for the initial stage. Special concerns in this setting would be damage to secondary knee stabilizers, development of limitation of motion and a prolonged period of functional disability.

Protected motion, in the first four weeks following the injury may be started in a functional brace with a 30 degrees extension stop. Active assisted flexion which does not place stress in the ACL may be started early. Strengthening exercises should emphasize the gastrocnemius and hamstring muscles which act synergistically with the ACL to prevent anterior tibial translation of the flexed knee.[28,34,35] Static exercises for the extensors of the knee may be performed in the 90 to 60 degree range and as part of straight leg raising exercises when the extension lag is less than 10 degrees. Closed kinetic chain exercises such as minisquats are also useful in this second stage.

An individual with chronic symptoms of ACL deficiency starts the rehabilitation process in the second stage. In general a more agressive program can be followed. Strengthening exercises for the quadriceps muscle can include eccentric muscle actions and a progression of closed kinetic chain exercises. The latter may include step-up exercises using a bench, one-legged half squats and sliding board activities. The use of a functional brace is recommended for sports activities. Although the absolute laxity of the deficient knee is unchanged the subjective symptoms of stability and the relative resistance to knee displacement at low loads are increased.[36]

Rehabilitation of the patient with a reconstructed ACL

After reconstructive surgery for an ACL tear rehabilitation should start during the hospital stay. In table 3 we present a rehabilitation protocol based on a literature review and our clinical experience.[4,28,32,33,37]

Table 3
A rehabilitation protocol for the patient with a reconstructed anterior cruciate ligament

A. Stage 1	**Acute**	**Post-operative**
1. Week 1		
a. Modalities		cryotherapy electrical stimulation
b. ROM		active assisted flexion 0 to 90 degrees full passive extension
c. Strengthening		static extension 90 to 60 degrees and flexion exercises with simultaneous electrical stimulation
d. Ambulation		crutches, partial (25%) weight-bearing
e. Brace		extension stop 0 deg
B. Stage 2	**Sub-Acute**	**Protected Mobilization**
2. Week 2-3		
a. Modalities		superficial heat to periarticular structures as effusion resolves electrical stimulation cryotherapy post-exercise
b. ROM		active assisted flexion full passive extension (prone) active extension 90 to 45 degrees
c. Strengthening		static extension 90 to 60 degrees straight leg raising (no extension lag) dynamic (PRE) flexion exercises minisquats with upper extremity support
d. Ambulation		crutches, partial weight-bearing (50%)
e. Brace		extension stop at 0 degrees
3. Week 4-5		
a. Modalities		supeficial heat to periarticular structures as effusion resoves electrical muscle stimulation cryotherapy post-exercise
b. ROM		active flexion active extension full arc

(Continúa)

c. Stregthening	static extension (90, 60, 30 degrees) exercises with simultaneous electrical stimulation dynamic (PRE) flexion minisquats, step exercises
d. Ambulation	full weight-bearing
e. Brace	0 degrees extension stop
f. Other	stationary cycling, pool exercises proprioceptive exercises
4. Week 6-7	
a. Modalities	ultrasound for tendon contractures cryotherapy post-exercise
b. ROM	lower extremity flexibility program
c. Strengthening	dynamic (PRE) flexion minisquats, step exercises, leg press
d. Ambulation	full weight-bearing
e. Brace	0 degrees extension stop
f. Other	cycling, walking, swimming
5. Week 8-12	
a. Modalities	cryotherapy post-exercise
b. ROM	lower extremity flexibility progam
c. Strengthening	dynamic 40 to 90 degrees extensors exercises minisquats, step exercises, leg press
d. Ambulation	full weight-bearing
e. Brace	functional brace with 0 degrees extension stop
f. Other	cycling, walking, pool exercises, proprioceptive training

C. **Stage 3**	**Long-term**	**Return to Activity**
6. Week 12-16		
a. Modalities		cryotherapy post-exercise
b. ROM		lower extremity flexibility program
c. Strengthening		dynamic extension and flexion exercises minisquats, step exercises, leg press
d. Ambulation		full weight-bearing
e. Brace		functional brace with o degrees extension stop
f. Other		cycling, walking, slow running, pool exercises, proprioceptive training
7. Week 16-20		
a. Modalities		cryotherapy post-exercise
b. ROM		lower extremity flexibility program
c. Strengthening		dynamic (PRE) extension and flexion exercises minisquats, step exercises, leg press
d. Ambulation		full weight-bearing
e. Brace		functional brace with 0 degrees extension stop
f. Other		cycling, walking, fast runing, pool exercises, proprioceptive taining, agilty drills (20 wks.) isokinetic testing

The rehabilitation of the patient after ACL reconstruction has become more agressive. This is in part due to the strong fixation of bone plugs, the initial tensile strength of the patellar tendon graft, and the well known negative effects of prolonged inmobilization.[25,32,38] The goals of the acute post-operative stage are to reduce inflammation, allow wound healing, obtain full extension, and achieve flexion of 90 degrees. Inmediate use of a continous passive motion to achieve early flexion is advocated by some authors. [25,37,39] Modalities such as cold and electrical stimulation in combination with simultaneously performed voluntary muscle contractions are also used to facilitate the achievement of these goals.[40]

Partial weight-bearing ambulation with crutches may be initiated inmediately following the surgical procedure.[4,37] A rehabilitation brace should be used at this stage allowing motion from full extension to 90 degrees of knee flexion. In the acute stage passive exercise to achieve full knee extension should be combined with active assisted flexion exercises. Static quadriceps exercises may be performed in the 60 to 90 degrees of flexion range without increasing the strain in the reconstructed ACL.[41]

In the second stage, mobilization is actively encouraged with varying degrees of protection. This protection is necessary because of the reduction in the tensile strength of the graft which undergoes a process of "ligamentization" and appears to be at its weakest 4 to 6 weeks after surgery. [9,25,32,38,42] Weight bearing activities are increased as tolerated by the patient initially with crutches. Full passive extension may be assisted with stretching exercises in the prone position.[37,43] Active knee extension may be started in a limited range (90 to 45 degrees) to avoid excessive stress in the graft. Hamstring strengthening may be continued with dynamic open chain exercises. Quadriceps strengthening with closed kinetic chain exercises such as minisquats with upper extremity support may also be initiated. The continued use of modalities such as superficial heat to periarticular tissue as effusion resolves, electrical stimulation and cryotherapy following exercise is also important.

During the latter part of the protected mobilization stage the rehabilitation of the patient progresses to ambulation without assistive devices, full active exercises to increase range of motion, open chain resistive exercises for the quadriceps muscle in a limited range (90 to 40 degrees), increased closed kinetic chain exercises such as step and one legged squats, and aerobic activities such as swimming and cycling with a high seat.

Finally, during the return to activity stage the patient is advanced to activities such as cycling, walking, slow running in a straight line, fast running, drills which involve gradual change of direction, and a full are dynamic strengthening program.[44] Special consideration should be given to the strength of the graft which does not reach maximal (but not normal), tensile strength until after one year following surgery.[28,42,45] Closed kinetic chain exercises such as the leg press should continue to be used as a major part of quadriceps muscle strengthening. Quadriceps open chain exercises with heavy resistance may lead to pain in the patellofemoral joint which could limit the patient's progress. Tests of functional capacity such as the vertical jump and isokinetic evaluations may be used as part of the criteria to allow full activity, training and competition. Protective bracing should be used in this stage and for approximately one year following the return to activity. [46]

Resumen: **El ligamento cruzado anterior (LCA) es una estructura intrarticular de la rodilla vital para su funcionamiento normal. Dicho ligamento es frecuentemente lesionado especialmente en actividades deportivas y las consecuencias de esta lesión incluyen lesiones a otras estructuras de la rodilla y cambios degenerativos tempranos. El tratamiento del paciente con lesión al LCA puede ser conservador u operatorio dependiendo de el tipo de lesión, la sintomatología del paciente y su nivel de actividad física. La rehabilitación es parte integral del manejo del paciente independientemente del tratamiento primario. Esta rehabilitación consiste de tres etapas y la meta es el regreso del paciente al nivel de actividad deseado. Los protocolos modernos de rehabilitación enfatizan la intervención temprana, el progreso rápido y la recuperación funcional.**

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THE MEDICAL ADMINISTRATIVE COMPONENT IS COMMITTED TO ENHANCE THE HEALTH OF THE PATIENTS WE SERVE IN OUR HOSPITAL, THE KNOWLEDGE AND PERFORMANCE OF OUR FACULTY. TO THOSE WE SERVE THROUGH INNOVATION, PERFORMANCE, EDUCATION, RESEARCH AND DEVELOPMENT.

IN THE FULFILLMENT OF THE MISSION AND BASED ON THOSE VALUES WE COMMIT OURSELVES TO THE FOLLOWING GOALS.

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TO PROVIDE THE HOSPITAL AND HEALTH RELATED SERVICES OF THE HIGHEST QUALITY FOR THE MEDICAL CARE, THE DIAGNOSIS AND TREATMENT OF THE SICK.

TO RELATE TO THOSE WE SERVE AS PEOPLE OF DIGNITY AND WORTH, REGARDLESS OF RACE, GENDER, CREED OR SOCIO-ECONOMIC STATUS.

-INNOVATION AND PERFORMANCE-

TO REMAIN A STRONG, GROWING, COST EFFECTIVE MEDICO-ADMINISTRATIVE COMPONENT RESPONSIVE TO THE CHANGING NEEDS OF THE DELIVERY OF MEDICAL CARE.

TO ATTRACT AND RETAIN WELL-QUALIFIED PHYSICIANS BY CREATING A CHALLENGING ENVIRONMENT WHICH PROVIDES OPPORTUNITY FOR ACHIEVEMENT.

TO CONTINUE TO IMPROVE OUR PERFORMANCE WITHIN THE FRAMEWORK OF WHAT IS UP-TO-DATE, RELEVANT AND COST EFFECTIVE. TO BE AT ALL TIMES FAIR TO THE NEEDS OF OUR FACULTY WITH THE TRUTH, PROMOTING FRIENDSHIP AND GOODWILL FOR THE BENEFIT OF ALL INVOLVED.

-EDUCATION, RESEARCH AND DEVELOPMENT-

TO PURSUE EDUCATION, RESEARCH AND DEVELOPMENT AND TO ASSURE THE HIGHEST QUALITY AND PERFORMANCE IN THE MOST COST EFFECTIVE WAY.

Reírse frecuentemente y amar mucho;
Ganarse el respeto de la gente inteligente
y el cariño de los niños;
Ganarse la aprobación de los críticos honestos
y aguantarse la traición de amigos falsos;
Apreciar la belleza;
Encontrar lo mejor de otros;
Dar de uno mismo;
Dejar el mundo un poquito mejor,
ya sea con un hijo sano, un pedazo de jardín,
o una condición social redimida;
Haber jugado y reído con entusiasmo
y cantando con exaltación;
Saber que una sola vida hubiera respirado
más fácilmente, porque tú hayas vivido...
ésto, es haber logrado el éxito.

EMERSON







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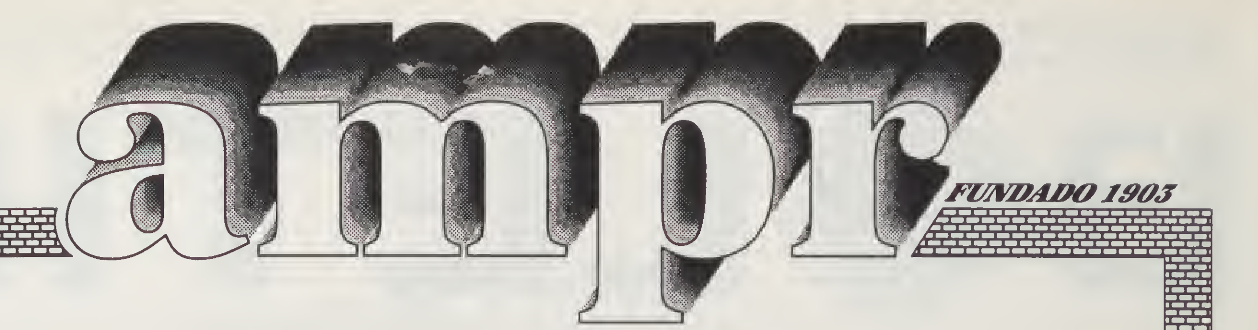
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Editorial:

The Problems of Alcohol Abuse

Sidney Kaye, Ph.D., M.Sc., D-ABCC*

What is alcohol abuse and who is an alcoholic or problem drinker? If you just have to have that drink to feel good in order to function, that is a bad first sign of "Loss of freedom of choice" which now involves the time, the place and the amount of drinking. The next sign of trouble are the varying degrees of the sociologic and medical effects that can produce serious problems.

A "problem drinker" is one who now has behavioral changes and health problems which can lead to on the job problems which leads to family problems.

A "problem drinker" is one who has an uncontrolled powerful compulsion to drink; has acquired a tolerance and now need more to feel "good"; has severe withdrawal symptoms because of physical dependency which may be more "life threatening" than heroin.

It would be a shock to all self acclaimed "social drinkers" to know that one in every ten social drinkers is a problem drinker.

When did all this start and how? It started even before the great Flood: When the ark landed, Noah planted grapes and made wine and got very drunk. (Genesis 9:20-21)

Man since his early begining has been searching for drugs to modify his mood. Alcohol easily suited his purpose and became available following its early discovery when fruit was allowed to ferment with the ubiquitous yeast to produce alcohol perhaps in the 1/2 shell of a fallen coconut. The refinement of distillation later yielded a much stronger alcoholic beverage using grain.

Male problem drinkers were plentiful during the past thousands of years. Women and teenagers were hardly (if ever) mentioned in history as "known drinkers". This was before the present liberation of the sexes and youth that has ocurred during the past 50 years in the USA and started about 30 years ago in Puerto Rico.

A recent survey conducted at 75 High Schools in 7 states (USA) showed that most students were drinking alcohol by age 15 and among the licensed drivers about half of the males and a third of the females admit to drinking and driving on occasion by age 17. This was reported by the Insurance Institute for Highway Safety in its Status Report: Vol. 21, No. 6: 6, 1986.

If alcohol had been discovered today rather than many thousands of years ago, I doubt whether it would pass the rigid safety requirements of the Food and Drug Administration (FDA) for "full disclosure" of its potential risks for the following reasons:

1. It is the #1 Public health problem; it is the #1 Drug of abuse; can effect and/or kill more people than any other drug or chemical by acute overdose or chronic abuse or synergistic actions with other drugs or in its contributions to accidents at home or at work or at play.

2. Approximately 30% of accidents, suicides, and homicides are alcohol related.

3. Approximately 40% of violence, child or wife abuse and rapes are alcohol related.

4. Approximately 45% of adult traffic deaths are alcohol related.

5. Alcohol abuse can produce serious health problems such as: gastritis, pancreatitis, cancer of the esophagus, Werneke's syndrome, Korsakoff psychosis, fatty infiltration of the liver, cirrhosis (Laennec). When the mother drinks so does the fetus: birth defects (EEG) resembles hypoxia, withdrawal symptoms may be present in the new born, mother's milk may contain alcohol. "Cafe coronary" (choked while drunk), hypoglycemia, increased susceptibility to infections, DT (dementia tremens)- can die "suddenly"; blood deficiencies, cardiomyopathy are all possibilities.

Distribution: Alcohol follows the water pattern of the body. About one hour after drinking (post absorption): the urine will have the highest concentration of alcohol; whole blood next; and solid tissue such as liver, kidney or brain will have lowest levels. Fat will have no alcohol and this in part explains why many women with the same body weight, background and more body fat "distribution" become more intoxicated faster than their male counter part; plus the fact that they also produce less gastric alcohol dehydrogenase.

Since one out of every ten social drinkers is a problem (alcoholic) drinker, out of a population of

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about 250 million in the USA there are more than 100 million drinkers and then more than 10 million problem drinkers. And in Puerto Rico with a 3.6 million population, there are more than 1.5 million drinkers and then more than 150 thousand problem drinkers.

If you weight 70 kg (154 lbs) and drink 80 proof (40%) whiskey after one hour, the Blood Alcohol Concentration (BAC) would be approximately:

Whiskey	BAC	
3 oz	0.05 g/dl Blood alcohol conc.	(BAC)
6 oz	0.10 g/dl Legal limits	7 x more apt for accident
9 oz	0.15g/dl	28 x more apt for accident

1 oz of whiskey 80 proof (40%) is approximately equivalent to 4 oz of wine (10%) or 10 oz of beer (4%).

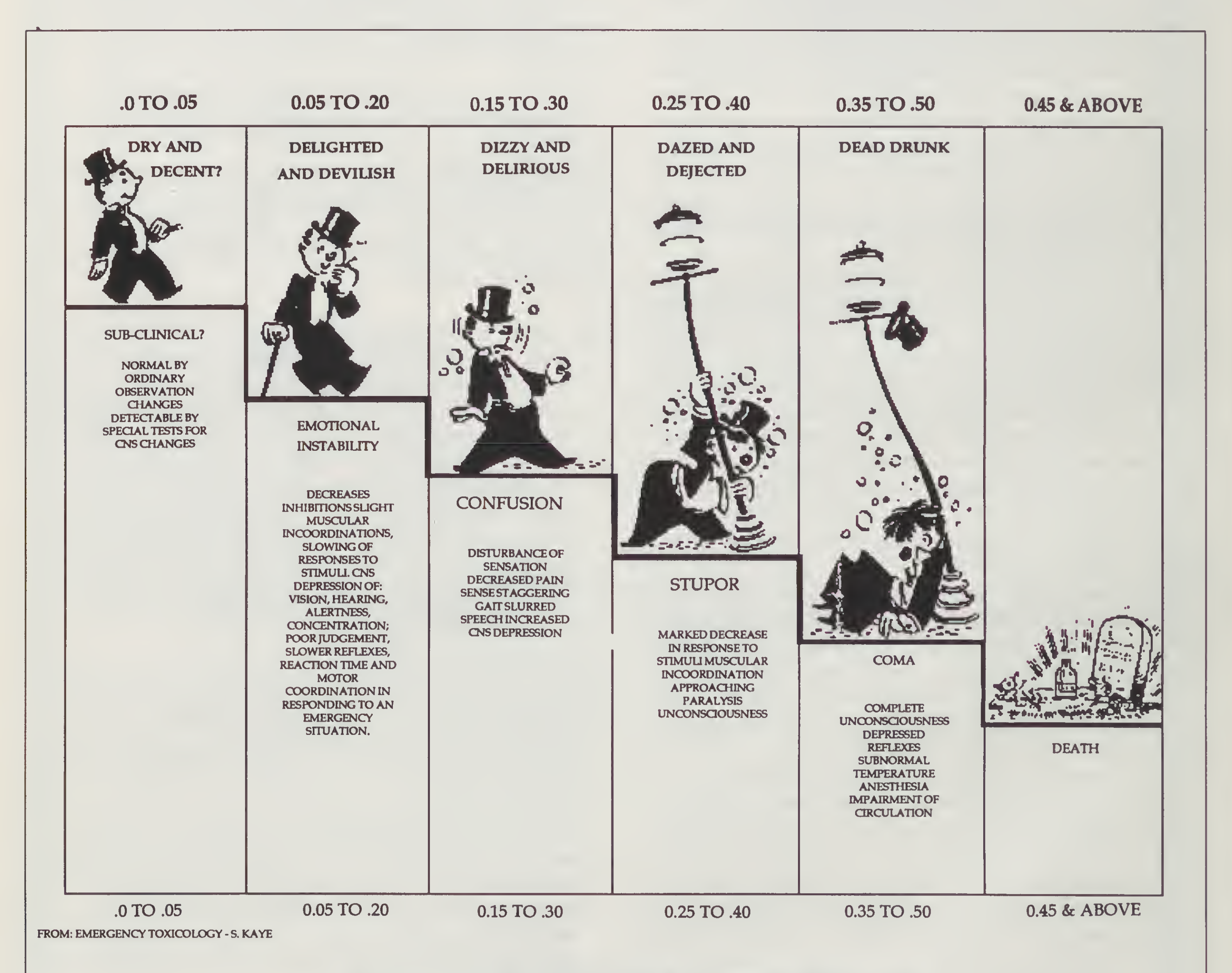
Normally zero order kinetics metabolizes and eliminates about 1 oz whiskey/hour and about a 0.015 - 0.020 g/dl per hour decrease in BAC. At a low BAC it would be closer to 0.015 and at a high BAC it would be closer to 0.02 g/dl, (20 mg/dl).

Accidents are the #1 cause of death from ages 1-45 years.Traffic fatalities represent more than 1/2 of total accidents. Alcohol is related in more than 40% of the traffic deaths of adults.

Risk during Emergency surgery and anesthesia

An **acute** alcoholic already is partially sedated; therefore there is a risk of synergism or additive action.

A **chronic** alcoholic with cross tolerance to possible general anesthetics and other CNS depressant drugs may now require more anesthesia.



Percent of Alcohol in the Blood

Comments

Alcohol is a **CNS depressant for** **every one** even at **low blood level** concentrations. One does not have to be obviously "drunk" to be unfit (accident prone) to properly operate a motor vehicle.

Legal limits established by law as "prima facie" evidence that one is under the influence of alcohol and is unfit to properly operate a motor vehicle (in PR and USA) is set at. 0.10 g/dl. (100 mg% BAC).

However, it is now believed that this BAC should be lowered to 0.08 g/dl which is the legal limit set in Canada and most of Europe and several states in USA, and else where.

In Belgium, Finland, Greece, Netherlands, Norway, Portugal, Japan and parts of Australia the present legal limit BAC is 0.05 g/dl.

The problem is universal and is very serious. The physician must somehow try to educate his patient that he does not have to get drunk to enjoy an "occasional social drink".

All persons do not tolerate alcohol in the same way. Some persons cannot (and should not) drink even small amounts; it can do them harm. Most adults however can tolerate and enjoy an occasional social drink (in moderation).

Vodka which is 80 proof (40%) pure ethyl alcohol without chemical congeners is easily metabolized by the liver and when a small amount is mixed with fruit juices can be pleasant and also an excellent source of the natural vitamins in the juice (sin abuso at home).

Fallacies (Myths)

1. Black coffee, or hot and cold showers, or exercise will helpto metabolize more rapidly; (not so).
2. Keep warm in freezing weather (quite the opposite; there is heat loss).
3. Is an aphrodisiac (not so but there is less inhibitions and impaired judgement).
4. You can drive better (not so, but you are relaxed, drowsy, less alert, less self critical, more daring, more accident prone due to depression of the CNS, the 5 senses, judgement, reflexes and motor coordination, even at low BAC.

Truths (If in moderation) but not advisable for some persons.

1. "Milk of old age" (Osler).
2. "Mistress of medicine" (Hippocrates).
3. Can stimulate appetite, summons sleep, act as an euphoriant or tranquilizer, block bitter memories, soothe tension, anxiety and stress, comforts the heavy heart, loneliness and boredom, act as a social lubricant and "life of the party" with less inhibitions, and tensions.
4. Can be a pleasant part of our culture and social life, and can present a feeling of "well being" and good health only if used in moderation of time, place and amount and is not contraindicated for "special reasons".

Reference

Kaye, Sidney, Emergency Toxicology: A guide for the identification, diagnosis and treatment of poisonings, Charles C. Thomas, Springfield, Ill. 5th Ed., 1988.

Artículos Originales:

Value of Performing a Chest Radiograph in Patients with Diagnosis of "Clinical Sepsis"

Juster Torres, M.D.* Ginel Rodríguez, M.D., F.A.A.P.**

Summary: **In any infant admitted with diagnosis of "clinical sepsis", a chest radiograph is commonly obtained as a routine work-up. The purpose of this study was to establish the relationship between an abnormal chest radiograph and "clinical sepsis" in a population of infants. The clinical records and chest radiographs of 81 infants, (less than 3 month old) were reviewed. The temperature, white blood cell count, respiratory signs, symptoms, and chief complaints were recorded and compared with positive or negative chest radiographs. A statistically significant correlation with abnormality in the chest radiograph was not established.**

Four patients, (31%), with any respiratory signs had abnormal chest radiographs, whereas only 13, (19%) asymptomatic patients did.

It was concluded that chest radiographs do not add useful information to the evaluation of a febrile infant who does not have clinical findings of pulmonary diseases. However, due to the limited population studied, it seems appropriate to continue the current recommended practice of ordering chest radiographs in febrile infants 3 months old or less.

Introduction:

The policy of obtaining a chest radiograph in infants admitted with diagnosis of "clinical sepsis" without indications of pulmonary disease is controversial.

Numerous authors in different studies have considered mandatory the routine order of chest radiographs as part of the sepsis workup for febrile infants less than 3 months old[1,2].

Although several studies have correlated chest radiograph findings with the presence of clinical signs of pulmonary diseases, only a few studies have evaluated the utility of the chest radiograph in infants admitted with diagnosis of "clinical sepsis"(3,4,5).

The study of Branson et al, (1993), considers that a chest radiograph should be obtained only in febrile infants who have clinical indications of pulmonary disease(6).

In 1991 a study by Crain et al. found that 31% of infants with any respiratory signs had an abnormal chest radiograph wereas only 1% of asymptomatic infants did. They showed that in absence of respiratory signs, febrile infants are unlikely to have an abnormal chest radiograph(7).

The study of Heulitt et al. in 1988 revealed that a chest radiograph should be obtained in febrile infants only when signs of respiratory distress are present(8).

At our institution the chest radiograph, in all patients admitted with the diagnosis of "clinical sepsis" is considered by most physicians an extension of the history and the physical examination; rather than a specialized examination to be used in specific instances.

In addition to establish the value of chest plate in a "clinical sepsis" population, it is very important to keep in mind two facts: one, all radiation exposure must be considered potentially capable of somatic or genetic damage and two, the cost. Nearly one and a half billion dollars are spent annually in the United States alone on this examination(9).

We intended to evaluate the efficacy of chest radiograph and justify statistically its value, if any, as a part of a sepsis workup in infants with or without respiratory symptoms. We evaluated the relationship of abnormal chest radiograph and respiratory signs, fever, leukocytosis, signs and symptoms in infants admitted, with the diagnosis of "clinical sepsis".

Material and Methods

The study was conducted at the pediatric ward of the University Hospital Dr. Ramón Ruiz Arnau. The study population included 95 infants admitted through the Emergency Room to the Pediatric Ward and Nursery, during a 6 month period beginning from September 1993 to March 1994. The ages of infants selected for the study were between 1 and 62 days old; 49 boys and 32 girls.

Patients included in this study were all admitted with diagnosis of "clinical sepsis".

From a total of 95 records reviewed, 14 were

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excluded from of the study, due to the fact that chest radiographs were not ordered according to admission orders or because these were not available.

The information was obtained from infants records and arranged in a data collection form. The following data was gathered on each patient; age, sex, temperature, respiratory rate, chief complaints, physical examination findings on admission, white blood cell count, and chest radiographs.

For the purpose of this study all radiographs were reviewed independently. Radiologists read the chest radiographs retrospectively without any clinical infrmation about the infant, except the knowledge that they were a part of the study group.

The radiographs with abnormal readings were assigned to one or more of the following categories:

1. air trapping
2. pneumonic infiltrate
3. hyperaeration
4. air leak
5. increased interstitial markings

Differences in the radiologist interpretation were handled in the following manners:

1. All films in which the radiologist did not agree initially were re-read, without clinical information by another radiologist. 2. In order to make a final analysis the most abnormal chest radiographs interpretations were used.

We used the Epi info program to assess fequency, mean, standard deviation, x 2 test and confidence interval for the initial and final chest radiograph readings and the Fisher exact t test 91 tailed). We considered a $p < 0.05$ as significant for the group compared.

For the purpose of our study we used the values of white blood cells according to age as recommended in "Neonatology: Pathophysiology and Management", (1993) and fever was defined as temperature >38.5 as recommended in standards of management in most pediatrics textbooks.[1,2,10,11]

Results

During the study period we identified 95 records of infants less than 3 months of age evaluated for "clinical sepsis". Fourteen records did not have chest radiographs and were excluded from our study. There were 81 chest radiographs available for interpretation. Overall observer agreement between study radiologist was 95%, (p=0.0006) (Table #1). The two radilogists initially agreed in 67 of the 81 cases; this included 63 films read as negative and four films read as positive. There were 14 cases in which there was an initial disagreement.

On joint examination they finally aggreed to designate 13 of the fourteen films positive and one was labeled negative. After this joint reading, 17, (21%), of the 81 radiographs were interpreted as positive and 64, (79%) were labeled negative (Table #2).

Table 1.
First and Final Chest radiograph reading versus positive and negative findings.

Initial Reading	Final Reading
72 Neg	63 Neg
	4 Pos.
4 Pos	4 Pos
	0 Neg
5 undetermined	1 Neg
	4 Pos

Confidence Interval = 95%
P Value = 0.0006

Table 2.
Frecuency of positive and negative chest radiographs and correlation with the diagnosis of "clinical sepsis"

	Frequency	%
Negative X ray	64	79.0
Positive X ray	17	21.0

Of the total sample investigated, 49 were males and 32 were females. There was no statistically signficant associacion between sex and the presence of a positive chest radiograph, (p=0.87) (Table #3). No association was observed between chief complaints and findings in chest radiographs, (Table 4). The relationship between abnormal white blood cell counts according to age with positive or negative chest radiograph was not statistically significant for any group (table #5).

Table #6 shows the association between fever and findings in chest radiographs. No statistically significance was observed, (p=0.60).

Table #7 indicates the specific respiratory signs and their relationship with chest radiograph findings. The association with a positive or negative chest

Table 3.
Distribution of positive and negative chest radiographs by sex

	Pos	Neg	Total
M	10	39	49
F	7	25	32

N= 81
confidence interval 95% 0.32
p= 0.87 p=0.87 NS

Table 4.
Signs and symptoms and the relationship with positive and negative chest radiographs

	Pos	Neg	Total	P. Value
Abdominal distention	1	6	7	0.16
Fever	3	18	21	0.16
Cyanosis	1	4	5	0.69
Hypoglycemia	0	4	4	0.69
Leukopenia	0	9	9	0.166
Poor Sucking	4	12	16	1.0
Irritability	3	6	9	0.16
Thrombocytopenia	1	5	6	0.69
Hypoactivity	2	9	11	0.16

Table 6.
Relationship among positive and negative chest radiograph versus fever

	# Positive Chest Radiograph	# Negative Chest Radiograph
Fever	3	11
No Fever	14	53

Fever >/. 38.5
Confidence interval 95%
Fisher exact T Test 1 tailed P Value 0.60

Table 5.
White blood cell count versus positive and negative chest plate

Age	Positive chest plate Abnormal WBC to Normal WBC ratio	Negative chest plate Abnormal WBC to Normal WBC ratio	P Value
1-3 days	3:10	17:25	0.419
4-14 days	0:12	1:6	0.32
5-30 days	0:2	3:5	0.30
> 30 days	0:0	3:4	1.00
Total	3:14	24:40	

radiograph was not statistically significant for any specific respiratory signs.

The presence or absence of any respiratory signs did not correlate significatly with the likelihood of having a positive chest radiograph, (p=0.272), (Table #8). It was positive in 13, (19%) of the infants with no respiratory signs, although the positive predictive value of respiratory signs was only 31%. The negative predictive value; the likelihood of having a negative chest radiograph if the infant had no respiratory sign was 81%.

Discussion

Many pediatricians advocate chest radiographs in the evaluation of "clinical sepsis". Studies in older age population suggest that chest radiographs in the absence of pulmonary symptoms have no diagnostic value,[6,12]. Although these similar studies suggest that asymptomatic children, like adults, may not need a chest radiograph, a review of the literature revealed only two studies that predict the need for a chest radiograph in the febrile infant[7,8].

The purpose of this study was to look at the relationship between the clinical signs and positive chest radiograph. Nearly 81% of the 68 infants who were admitted with diagnosis of "clinical sepsis" but without respiratory signs had negative radiographs. Without respiratory signs, 19% had positive chest plate.

In the study of Crain etal,[7], they found that in patients who had any respiratory signs, 31% had positive findings in chest radiograph. In Heulitt study[8], it was 37%. In our study we found that 31% of patients with any respiratory signs had an abnormal chest radiograph. Crain found that 1% of patients without any respiratory signs had a positive radiograph and in the one done by Heulitt, 3% had positive findings associated without any respiratory signs. In our study this figure was a 19%. We understand that differences in the interpretation of clinical terms used, such as rales and rhonchi and differences in the ability of the examiners to recognize certain findings depending on their individuals skills should be considered when analyzing our study because such differences might have affected our results.

Our study lacked the number of patients necessary to make a definitive statement that might alter the current practice of routinely obtaining chest radiographs to explain the cause of fever in a young infant. Until a larger sample is achieved it seems appropriate

Table 7.
Respiratory signs and positive versus negative ches radiograph

Signs	Positive	Negative	Total
Cyanosis	2	5	7
Nasal Discharge	0	1	1
Intercostal Retractions	2	2	4
Nasal Flaring	0	1	1

Table 8.
Respiratory signs and positive chest radiograph

Respiratory Signs	Chest radiograph readings			
Any	Pos (n)	(%)	neg (n)	(%)
(n=13)	4	31	9	69
None				
(n=68)	13	19	55	81

p = 0.272
95% confidence limits = 0.36
odds ratio = 2.88

to continue the practice presently recommended of ordering chest radiographs in febrile infants 3 months old or less, so a policy advocating ordering a chest radiograph only for those with respiratory signs or symptoms should not be established at this moment.

We strongly consider that this study should be repeated in order to secure larger group of patients and to combine similar studies published previously in the medical literature using comulative meta-analysis. This will allow conclusions that could not derived from any one study by itself with statistical confidence.

Acknowledgement

We would like to acknowledge and thank all those who aided in the preparation of this study. We owe special thanks to Mr. Michael Velez for his assistance in the statistical analysis.

Resumen: **En cualquier infante con diagnóstico de "Sepsis Clínica" una radiografía de tórax se obtiene de rutina. El propósito de este estudio fue el de establecer una relación entre el hallazgo de una radiografía de tórax anormal y un diagnóstico de: "Sepsis Clínica". Los expedientes clínicos y sus respectivas radiografías de tórax de 81 pacientes (edades menores de 3 meses), fueron revisados. La temperatura, el conteo de células blancas, los signos respiratorios, síntomas y la queja principal fueron comparados con hallazgos positivos y negativos en las radiografías de tórax. La relación no fue estadísticamente significativa.**

Cuatro pacientes, (31%) sin signos respiratorios tuvieron radiografías de tórax anormales, mientras que solo 13, (19%) sin dichos signos la tuvieron.

Se concluye que las radiografías de tórax no proveen información adicional para la evaluación de infantes febriles que no presenten hallazgos clínicos de enfermedades pulmonares. Sin embargo debido al número limitado de infantes evaluados se considera apropiado la práctica de ordenar radiografías de tórax en infantes febriles de 3 meses de edad o menos.

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Original Articles:

Total colectomy and "J" pouch ileo-anal pull through without temporary diverting ileostomy in the management of ulcerative colitis

Víctor N. Ortiz, M.D. FACS, FAAP
Giselle Suárez, M.D., Santiago A. Ulloa, M.D., Efraín R. Vidal, M.D.

Summary: **Anal sphincter saving operations are currently the procedures of choice for most patients with ulcerative colitis. In this study we review the experience of The Mayagüez Medical Center, Department of Surgery with 18 patients who underwent a total abdominal colectomy, rectal mucosectomy and "J" pouch ileoanal pullthrough without a temporary diverting ileostomy in the management of ulcerative colitis. The complications that are associated with this procedure in our patients are: wound infection, postoperative leak, early stricture and intestinal obstruction. Only one patient died and it was due to a massive pulmonary embolism. Finally, we conclude that this procedure should be reserved for well nourished, psycho-logically stable young patients who are willing to tolerate the complications associated with it.**

Introduction

During the past decade anal sphincter saving operations have been used with increasing frequency for the definitive treatment of ulcerative colitis. Currently, they are the procedure of choice for most patients with this disease. The operations are designed to remove all of the colitis, preserving trans-anal defecation and fecal continence. A permanent abdominal ileostomy is avoided in these patients [1]. The operation is designed to cure the patient of the disease while maintaining an excellent quality of life.

We will discuss our initial experience with total abdominal colectomy, rectal mucosectomy and "J" pouch ileoanal pullthrough without a temporary diverting ileostomy in the management of ulcerative colitis.

Materials and Methods

During the period from July, 1988 through June, 1992, 18 patients were operated at the Mayagüez Medical Center for ulcerative colitis. There were 12 males and 6 females ranging in age from 18 to 50 years (mean, 32 years).

The patients were classified in two main groups depending if they were done in elective or emergency basis. The first group, was composed of ten patients who were operated electively. All of these were treated with a one stage procedure. Two of them were on massive steroids and the other eight were in low steroids or none at all.

The second group included eight patients that were operated on an urgent basis. All of them were on massive steroids. Four of them were operated in one stage, while the others four were done in two stages. That means, a total abdominal colectomy, end ileostomy and Hartman's pouch; followed, six weeks later, by rectal mucosectomy and "J" pouch ileoanal pullthrough. These two stage procedures were reserved for critically ill patients with complications such as toxic megacolon or massive rectal bleeding.

Technique

The patient is placed in modified lithotomy position and a foley catheter is inserted as soon as the patient is anesthetized, and a nasogastric tube and a central venous line (if not already in) are also inserted. The abdominal cavity is entered via a midline incision and thoroughly explored. The cecum, colon and proximal rectum are excised. After adequate small bowel lengthening, which is essential for the success of this procedure, the "J" pouch is constructed [2,3,4,5.] It should always measure less than 15 cm in height (Figure1). Then, a rectal mucosectomy is performed initiated in the abdominal side remnant by injection of diluted epinephrine saline solution into of the subserosa of the intestinal wall. The serosa and muscularis are cut with a scalpel and the mucosa is bluntly dissected until separated from the muscularis as far as possible. (Figure 2). The perineal part of the rectal mucosectomy is initiated at 0.5 cm proximal to the dentate line and is performed using the same technique. This part of the procedure is done with minimal anal dilatation.

Finally, the pull through is performed by suturing the "J" pouch to the rectal mucosa at 0.5 cm proximal to the dentate line.

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All correspondence with: Víctor N. Ortiz, M.D., Program Director, Dept. of Surgery Mayagüez Medical Center, Box 3008, Mayagüez, P.R. 00681.

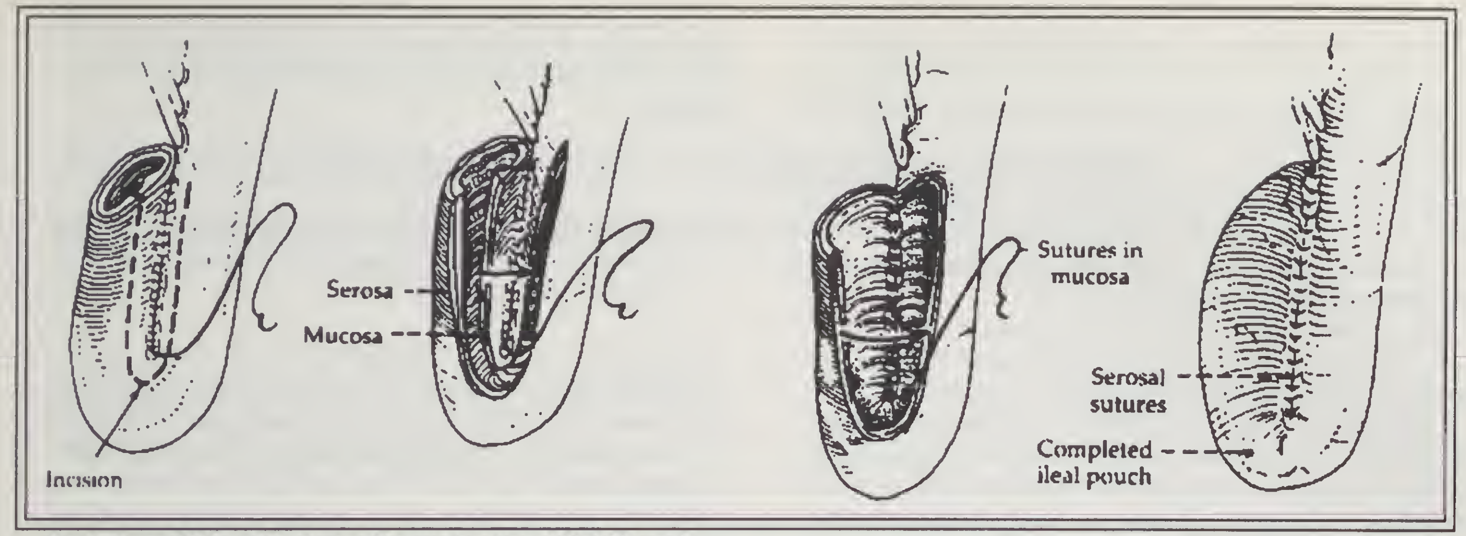


Fig. 1. From left to right: steps in the construction of the "J" pouch.

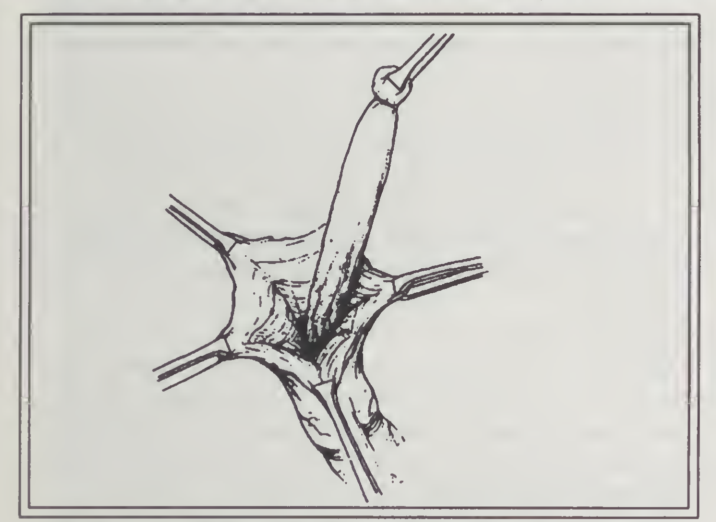


Fig. 2. Cephatad view or the initial dissection of the rectal mucosectomy.

At the end of the procedure no drains are left. In our series no proximal decompressive ileostomies were done.

Results

Seventeen of the 18 patients with colitis showed marked clinical improvement after resection of the diseased colon and rectal mucosa. There was one death in the post operative period. It was an elective case and our oldest patient. He was on no steroids. On his sixth postoperative day he developed massive pulmonary embolism resulting in death.

The most common complication after pullthrough procedure was wound infection[4]. There were six cases of wound infections (33%). All of them were on massive steroids and all healed without disrupture of the fascia after drainage and antibiotic therapy.

Three patients had a postoperative leak (16%). One patient leaked from the Hartman's pouch, developing peritonitis. He was managed by drainage and supportive measures such as total parenteral nutrition, antibiotics and bowel rest with recovery and eventual second stage procedure. A second patient leaked at the pouch level after one stage surgery. She was on massive steroids and developed an enterovaginal fistula that required a proximal decompressive ileostomy. This is the only patient in our series that had to undergo a decompressive ileostomy, followed by repair of the fistula and closure of the ileostomy. She is doing quite well. A third patient leaked at the pouch level developing an enterocutaneus fistula but was treated by drainage and supportive measures, including total parenteral nutrition, bowel rest, somatostatin analogue therapy with spontaneous closure of the fistula.

There was one early stricture (6%), which was successfully treated with prompt daily dilatation, and one case of intestinal obstruction (6%) due to adhesions, which was managed with enterolysis.

No urinary dysfunction, dyspareunia, pouchitis, or retrograde ejaculation have been encountered in our patients[4,6]. One patient became pregnant after the procedure and delivered a healthy mature baby.

Each of the seventeen patients are currently progressing well. Most have between two and five continent bowel movements per 24 hours. Less than 12% experienced daytime or nocturnal soiling by six months. There was no seepage or incontinence.

Discussion

Due to the high complication rate of proximal decompressive ileostomy we are not performing it in our patients. We follow them very closely and institute prompt drainage followed by total parenteral nutrition, bowel rest and somatostatin analogue therapy if any leakage occurs. Only one patient required decompressive ileostomy after leakage and it was because of a large enterovaginal fistula.

Massive steroids by themselves are not an indication for decompressive ileostomy at the time of the surgical procedure if the patients are well nourished. In some

patients, with massive bleeding and toxic megacolon a two stage procedure should be instituted. We wean the patient off steroids as much as possible prior to the final surgical stage.

We believe that our good functional results are due to: adequate mesenteric lengthening, no tension at the anastomosis, short rectal muscle cuff, short reservoir and spout, avoidance of anorectal dilatation, and team approach to the problem.

This procedure should be performed in one center with personnel fully trained and ready to manage these patients from the beginning to the end.

Finally, we believe that this is a complex procedure that should be reserved for well nourished, psychologically stable young patients who are highly motivated and willing to tolerate the early postoperative complications that are associated with this procedure.

Resumen: **Las operaciones en las cuales se preserva el esfínter anal son actualmente los procedimientos de elección para el tratamiento de los pacientes con colitis ulcerosa. En este estudio revisamos nuestras experiencias en el Departamento de Cirugía del Centro Médico de Mayagüez con 18 pacientes de esta enfermedad que fueron sometidos a una colectomía abdominal total, mucosectomía rectal, y anastomosis ileoanal con bolsa en forma de "J" sin una ileostomía proximal. Las complicaciones asociadas a este procedimiento en nuestros pacientes son: infección de herida, fuga de la anastomosis, estenosis y obstrucción intestinal. Un solo paciente falleció y fue debido a una embolia pulmonar masiva. Finalmente concluimos que este procedimiento debe estar reservado para pacientes jóvenes, altamente motivados y sicológicamente estables que estén dispuestos a tolerar las complicaciones asociadas al mismo.**

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Original Articles:

Adolescent student's compliance with testicular self examination

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Summary: **To determine what adolescents students know or feel about testicular cancer, (TC) and the testicular self examination, (TSE), technique, 127 males students (mean age 16.14 years) were given a 21 item questionaire. The role of the primaly physician and the role of written and visual educational material were assessed for effectiveness in increasing the regular performance of monthly testicular self examination by male students at a Health Education Course at Cervantes Public School at Bayamón, P.R. Out of 127 male student, only 2.4%, (n=3), iniatially knew about the symptoms of TC. Analysis of the attitude and knowledge questions revealed that respondents were not sure about general concepts in TC and, were not sure that this cancer could be self diagnosed.**

This study pretends to assess the effects of modeling and guiding practice as components within a comprehensive testicular self examination education program for adolescents male students. Three groups were studied from 10th, 11th, and 12th, grade. The variables investigated were knowledge of testicular cancer, attitudes toward testicular cancer, and frequency of self reported testicular self examination.

The participants then received written material plus a physician's lecture on TC and TSE. Upon follow up, 87.5%, (n = 113) of the students reported performing monthly TSE, (P < 0.001), a statistically significant increase in performance.

Although 20.3% (n = 26) reported having a physical examination by a physician within the previous 3 months, less than 4.7%, (n = 6) reported being taught TSE by a physician. Physicians need to educate males about testicular cancer and its early detection.

Key words:
TC = Testicular Cancer
TSE = Testicular Self Examination

The recent controversy in the adolescent literature regarding the significant value to incorporate routine testicular cancer (TC) education and testicular self examination (TSE) technique in the educational system has not received the necessary importance. General studies suggest that the basic knowledge among the adolescents regarding this condition is poor.[1] The value of routine education regarding the TC and TSE suggest that information about the basic knowledge in adolescents is needed.[1-3] Testicular cancer is the most common solid tumor in males aged 15-34 years. Fourteen percentage of cancer deaths in this age group is due to testicular cancer.[4] The incidence of TC apparently is increasing in adolescents and epidemiologic studies report an incidence as high as 1 in 10,000.[5] These indications of increasing case numbers of TC and the young age of victims should alert primary physicians. In spite of this increased incidence, previous studies have shown that adolescent men are unaware of their risk of developing TC.[8,9] Testicular cancer is easily detected by routine testicular self examination and curable most of the time when early detected.[6] The American Cancer Society recomends that testicular self examination, a simple procedure, be performed monthly by males beginning at age 15.[7]

The purpose of this study was to establish male adolescent knowledge and attitudes toward TC and TSE. We surveyed adolescent male students about their knowledge and practice of early cancer detection techniques and we also assessed the effectiveness an educational programs had in increasing the use of TSE by them. Additionally we were interested in whether adolescents were receiving proper education about TC and TSE during routine physical examinations. We pretend to encourage the practice of TSE by creating a favorable attitude toward TSE and we will change the perception of social pressures to perform TSE. In Puerto Rico no previous studies have been done about the knowledge and attitude toward TC in the adolescent group.

Materials and Methods

Survey data was collected from males from the 10th, 11th, and the 12th grades students enrolled in Health courses at the public school Miguel Cervantes at Bayamón P.R. The project was approved by the

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school superintendent as well as the medical school's Clinical Research Practices Committee. Prior to collecting the data, a pilot study was done to validate the questionnaire.

Complete data was obtained from 127 students (92% response rate). The students ranged in age from 14 to 19 years with a mean age of 16.1 (+ 1.07).

A questionnaire was administered to evaluate their awareness of testicular cancer and the testicular self examination. Survey items addressed respondent's cancer knowledge, health practices, relationship with physicians knowledge and practices of testicular self examination and level of information about testicular cancer. The questionnaire was distributed and completed during class hours. Permission to approach the group was obtained from their supervisors. The eight percent of the students that did not participate were because they were absent or refused to participate.

Research was conducted from October 1992 to March1993. Students were informed that their participation was entirely voluntary and their responses would remain anonymous.

After finishing the questionnaire the whole group received instructions in the techniques of testicular cancer self examination and its importance using slides and lectures. The post intervention questionnaire was administered one month later to the group decribing the risks and the signs of testicular cancer as well as testicular self examination technique. The followup questionnaire was administered by the same person.

Subjects were asked to indicate general knowledge about TC. A scoring system was used ranging from 0 to 17 points. Only the questions measuring knowledge were scored.

Statistical Analysis

Data was analyzed using the Epi-Info and the SPSS statistical computer software. Data was expressed as mean ± SD. A paired T-test for comparison of numeric data was used after post intervention questionnaire was given. A p-value less than 0.05 was considered statistically significant.

Results

The 127 male subjects who answered the pretest questionnaire ranged in age from 14 to 19 years (mean = 16.1 years ± 1.07).

In relation with knowledge of the association of age and testicular cancer the participants were asked to indicate which age gronp is at higher risk for developing testicular cancer. Response choices included men under age 15, aged 15-35, aged 36-55 or aged greater than 55 years. Sixty five percent of the students surveyed, (n=83), indicated the correct risk group, (15-35 years). On follow-up survey, 79.5% (n = 101), of the students were aware that mean ages 15 - 35 are most at risk for testicular cancer, (P<0.07). There was an increase of 15.1% in the correct perception about the correct age related risk group. On follow-up intervention this was statistically significant.

Of the study group only 2.3% students, (n=3) admitted knowing about the symptoms of testicular cancer, the rest (n=124), admitted not knowing any of the symptoms. On follow up surveyed, 63% students (n=81) admitted knowing the symptoms of testicular cancer. This increase in knowledge was statistically significant, (P=0.006).

In relation with the knowledge of the signs and symptoms of testicular cancer, the questionnaire asked the students to correctly identify the signs and symptoms associated with testicular cancer from a list of correct and incorrect answers, (Table 1). Correct answers included a lump on the testicle, a swollen testicle and pain in the scrotum. Incorrect answers included difficulty in urinating, blood in the urine, sexual dysfunction, or growth on the scrotum. Another alternative indicated "did not know the symptoms associated". Any of the respondents identified only those symptoms associated with testicular cancer, however, the difference in the percentage of correct responses on the following was statistically significant (P<0.001). When each item for correct and incorrect answers were analyzed in the pre and post questionnaire a marked increased in the correct answers were observed when compared with pretest knowledge (P<0.001). (Table 1). The mean number of correct TC symptoms identified from a checklist was 2.3 however the mean number of incorrect symptoms was 2.2 suggesting a high level of guessing.

Table 1.
Identification of Symptoms

Symptoms	Initial Responses	Follow Up Responses
Mass	35	76
Swelling	50	72
Elongated	5	43
Disuria	25	30
Hematuria	13	25
Sexual Disfuntion	6	20
Scrotal pain	31	40
None	30	14
All	2	5

*P<0.001

The majority of students who participated had heard about TC and TSE from a magazine or newspaper (n=44). Other sources of information were a friend (n=15) nurse (n=lO) physician (n=14) or teacher (n=2). Forty two students never had heard before about TSE (Table 2).

Table 2. Sources of Information		
Information	No.	Percent
TV/Newspaper	44	34.6
Never	42	33.1
Family/Friend	15	11.8
M.D.	14	11.0
R.N.	10	7.9
Teacher	2	1.6

In relation with the number of student reporting a monthly TSE initially 49 (38.6%) performed monthly TSE compared to 58 (45.7%), on follow-up intervention so an increased in 7.1% was observed. When comparing the groups the role of the intervention was observed to make a statistical differences in the percentage of students who reported performing a monthly TSE (P< 0.001), (Table 3).

Table 3. Test Intervention

Frec. TSE	Initial Responses No.	(%)	Followup Responses No.	(%)
Daily	0	(0.0)	2	(1.6)
Week	10	(7.9)	36	(28.3)
Month	49	(38.6)	58	(45.7)
C/ Year	53	(41.7	0	(0.0)
C/ 2 year	6	(4.7)	0	(0.0)
Never	9	(7.1)	31	(24.4)

*P<0.001

The reasons given for not performing TSE are listed in table 4. The most common reported cause on the pretest was that the students feel they did not know how to perform an adequate examination (n =77). After the intervention, only 3 students reported not knowing to perform a monthly TSE. A significant difference in the percentage of knowledge about TSE was observed (P=0.00019).

When the focus group was asked if they would be interested in learning how to perform a correct TSE, 105 students, (82.7%) reported in favor of learning how to perform the examination. The same positive response was observed when they were asked if they would perform the TSE after learning the process. 91.3%, of the students, (n=116), reports a positive response, (P<0.006).

The subjects were asked to indicate their general knowledge about TC and TSE. Several questions were formulated to measure knowledge. A scoring system was used ranging 0 to 17 points. Only those questions measuring knowledge were scored. On the first questionnaire the overall mean score for the knowledge items for the whole group was 3.63. On follow-up score increased to 9.88, (P<0.0001), which indicated a strong attitude or concern toward learning.

On the preintervention, when exploring knowledge by grades using scoring system, the mean score was 4.01 for grade 10th, 2.96 for grade 11th and 3.6 for grade 12th. After the intervention those student from 12th grade obtained the highest score probably because of more knowledge or interest in the topic. This increase in knowledge resulted statistically significant for the subgloups, (P<0.001).

In relation with the correct method for the TSE, 37%, (n=48), of the sample, correctly identified the description of TSE on the pretest and 87.4% (n=111) on the postest. This was interpreted as a significant improvement after the intervention above the initial response, (X^2=11.3, df=l, P<0.0001). The same was observed for the technique.

When evaluating the number of student performing the TSE after the postintervention, a significant improvement was observed, (P<0.0001), (see fig.1).

Discussion

The results of this study supports previous findings that most high school males never heard of TC or TSE, have no knowledge of symptoms of TC or the method to perform the TSE. Because of the increased incidence of testicular cancer in young men, the curriculum of the Health courses should be reevaluated in order to force more attention on this cancer type. The TSE is a cancer detection technique recommended by the American Cancer Society as a monthly self examination to detect testicular abnormalities. Despite of its simplicity, previous studies report less than 7 % of college aged males perform a monthly TSE.[8-9,13]

To change this attitude, authors have encouraged physicians and nurses to instruct young males in the practice of TSE[9] and recommended the creation of public awareness program and instruction in secondary schools as methods of improving the adolescent's performance of TSE.

Table 4. Reason for not performing TSE

Reason	Initial Responses No.	(%)	Follow up Responses No.	(%)
Don´t understand	77	(60.6)	3	(9.6)
Takes too much time	1	(0.8)	2	(6.6)
Scared to performed	26	(20.6)	22	(70.9)
Uncomfortable answer	10	(7.9)	4	(12.9)
No answer	13	(10.1)	0	(0.0)

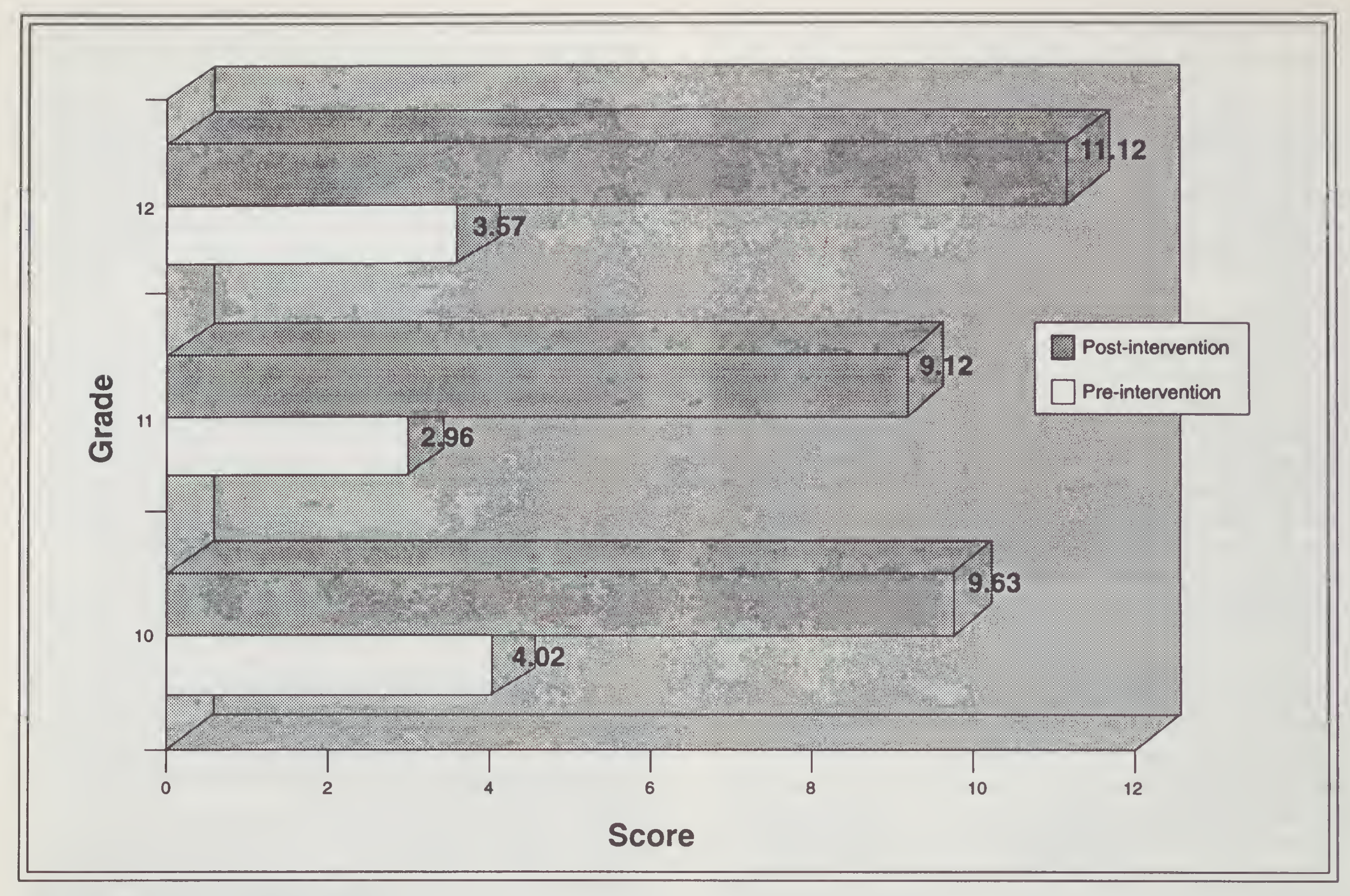


Figure 1. Description of score by grade

Upon follow-up, the study reported a significant increase in TSE activity and knowledge about TC. Knowledge increased to the point that a significant percentage of the student knew the most common symptoms of testicular cancer. This also supports other studies of male reporting increasing TSE activity.[10]

A high rate of compliance was observed after intervention since a significant percentage adopted the practice of a monthly TSE. This high level of interest in TSE has also been reported in earlier publications[(1,3,13)], however, the possibility that the participants may have replied in this manner to please the author, should be considered. We encourage to look for methods that may be effective in increasing adolescent's performance of TSE, Marty et al[(13)] showed that when patients with testicular cancer discusses his medical history with group of adolescents males, there is a significant increase in the practice of TSE. We must continue to promote and to look for effective methods of increasing adolescents awareness of TC and compliance of TSE.

Our findings are distressing particularly since early detection of testicular neoplasm can have almost 100% cure. Most of our subjects have received more frequently the information about TC and TSE from magazine and for newspaper but not from physicians. Physicians should take a more responsible role in teaching young men about this technique in the same way girls are taught how to examine their breasts. This coordinated in schools especially in the curriculum since the technique recommended by the ACS is easily learned.[11-12]

Our data suggest that patients who perform self examination are doing it regularly. Films and pamphlets should be available to increase the attitude toward TSE since our data suggest a significant increase in awareness. The health professionals will be of valuable help in the school and community program on this problem.

Initially, the analysis of our data suggested that few adolescents performed TSE, our intervention program promoted significant increase in knowledge of TC and TSE and the frequency of TSE.

Males need more education in self examination and deserve equal time in our medical education. Physicians and communities should take steps to equalize their approach to cancer education for both sexes.

Physicians must review techniques in every physical examination visit to assure adequate techniques and to improve performances.

Further researches must be expanded and should

have a continuity investigation to define medical intervention and to evaluate its effectiveness.

In recent years, emphasis on proper examination of the female genitalia has been placed but a similar emphasis on male genital examination is lacking.

Resumen: **En vías de estudiar lo que conocen los adolescentes sobre cáncer testicular y el autoexamen testicular, 127 varones con edad promedio de 16-14 años fueron evaluados a través de un cuestionario de 21 preguntas. El rol de los médicos primarios y el rol de material escrito y visual fue establecido para medir efectividad de aumentar la realización regular del autoexamen mensual testicular en varones adolescentes estudiantes en el curso de Educación de Salud en la Escuela Cervantes en Bayamón, P.R. De un total de 127 varones estudiantes, sólo 2.4%, (n=3), inicialmente conocían los síntomas del cáncer de testículo. El análisis de las actitudes y las preguntas de conocimientos revelaron que los participantes no estaban seguros de los conceptos generales sobre el cáncer de testículo ni sobre el autoexamen.**

Este estudio pretende establecer el efecto del modelaje y la práctica de guías como parte de un programa educativo de autoexamen para adolescentes varones. Grupos de grado 10, 11 y 12 fueron estudiados. Las variables investigadas fueron conocimientos de cáncer testicular, actitudes hacia el cáncer testicular y la frecuencia en que reportan el autoexamen. Estos participantes luego de la primera fase de interacción recibieron material escrito y una conferencia ofrecida por un médico sobre el cáncer de testículo y sobre el autoexamen. El muestreo de seguimiento reveló que un 87%, (n=113), de los estudiantes reportaron realizar mensualmente el autoexamen, (p< 0.001).

Aunque 20.3%, (n=6), reportaron haber sido examinados por un médico en los últimos 3 meses, menos de 4.7%, (n=6), reportaron que un médico le enseñó el autoexamen.

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Case Report:

Varicella (Purpura Fulminans variant) in an adult diagnosed at autopsy

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Summary: **We are presenting a 70 years old man with purpura fulminans secondary to Varicella infection. A brief review of literature is done and mechanism of disease are briefly discussed.**

Introduction

Purpura fulminans is a rare frequently fatal syndrome occuring predominantly in children with few cases reported in adults. It was first described by Guelliot in 1884 and its name was given by Henoch in 1887. The syndrome are extensive sleeding into the skin, necrosis accompanied with disseminated intravascular coagulation and usually follows an infection. We are presenting a 70 years old man with a diagnosis of Varicella (Purpura fulminans variant) at autopsy.

The pathogenesis, clinical presentation and etiologic factors are briefly discussed.

Key words: *Varicella, Purpura fulminans, hemorrhagic Varicella.*

Case Report:

A 70 years old man with Bronchial Asthma and Non insulin Dependent Diabetes Mellitus taking at home Prednisone 5 mg daily and Theophylline 150 mg q 12 hours was admitted to a private hospital with the chief complaint of back pain of one day of evolution. The initial impression diagnosis was an urinary tract infection. Later he developed a maculopapular rash at the thorax and abdomen. This was accompanied with time and place disorientation and coffee ground emesis. CBC showed leukocytosis and PT/PTT were prolonged. Ct scan was reported as negative. Due to the complicated clinical picture, he was referred to our Hospital. Upon admission, Physical exam revealed a temperature 98F (36.7°C), pulse 104/min, respiratory rate 20/min and blood pressure 105/65. He was alert, oriented x 3 and actively bleeding from venipuncture sites. Petechial like lesions were seen at thorax and abdomen. The four extremities had ecchymotic lesions.

Laboratories studies revealed a hematocrit value of 21, platelet count of 68,000 and a white blood cell count of 23,000 with 59% PMN's, 4% Lymphocytes, 10% Metamyelocites, 7% myelocites and 19% bands. Coagulation parameters were PT > 60, PTT > 90, Fibrinogen 8 mg/dl, negative protamine and positive fibrin products. Urinalysis showed 1-5 WBC/HPF and no bacteria.

He was admitted to the medical intensive care unit with a diagnosis of disseminated intravascular coagulation secondary to sepsis with suspected abdominal and/or pulmonary focus. Treatment with volume expanders, packed RBC's, fresh frozen plasma and broad spectrum antibiotics was started. A KUB was read as possible hollow viscus perforation. The patient developed hypotension and respiratory distress requiring positive inotropics and mechanical ventilation. Later, he had a cardiorespiratory arrest and died.

Autopsy was performed on the next day. On the external examination, the body was of a well developed and well nourished 70 years old man. One of authors (R.C.) observed that the petechial like lesions over the thorax and abdomen had the appearance of those lesion seen in a typical varicella case. Well delimitated ecchymosis were seen over the four extremities and back. (Figures 1, 2 and 3).

On internal examination: no free fluid was observed at the thoracic and abdominal cavities. The intestinal

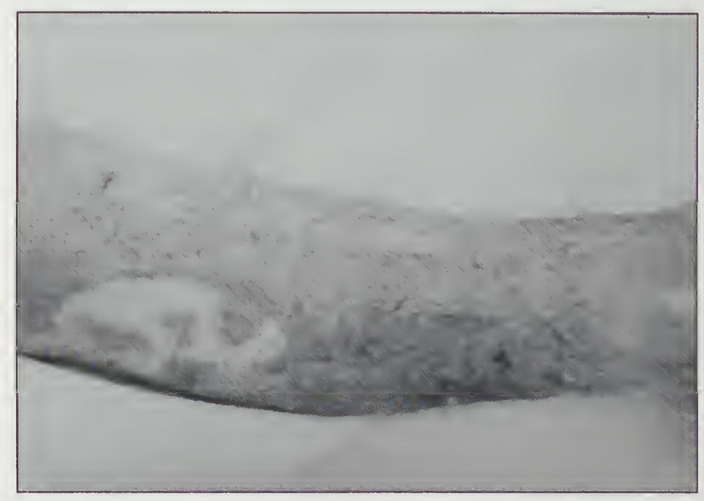


Figure 1. Left arm. Note: The well delimiteted area of skin necrosis and ecchymosis.

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Figure 2. Right arm skin: ecchymosis and necrosis.



Figure 3. Rash over the abdomen. Observe the different stages of the vesicles compatible with a varicella rash.

loops were normally disposed with a distended transverse colon. No areas of hollow viscus perforation were identified. The stomach and esophagus contained port wine blood. Theirs mucosal surfaces presented erosions and multiple,petechial hemorrhages. The larynx was hemorrhagic and edematous. The lungs were hyperaereated and congested. The brain presented a left parieto-occipital and cerebellar subarachnoid hemorrhages. The others organs were unremarkable.

The microscopic examination revealed acantholytic epidermal bullae with intranuclear inclusion bodies consistent with herpetic infection. The dermis had focal areas of hemorrhage and perivascular cuffing. Intranuclear inclusion bodies were identified at slides from the esophagus, liver, trachea and spleen.

An interview of the patient's relative was done by one of the authors (L.L.) to search for possible exposure to infectious agents. It was revealed that patient was previously hospitalized approximately one week previous to this admission at a ward that had a varicella outbreak. Later, one and a half week after the patient died, the patient's son and grandson developed varicella. Also an outbreak of varicella occurred among

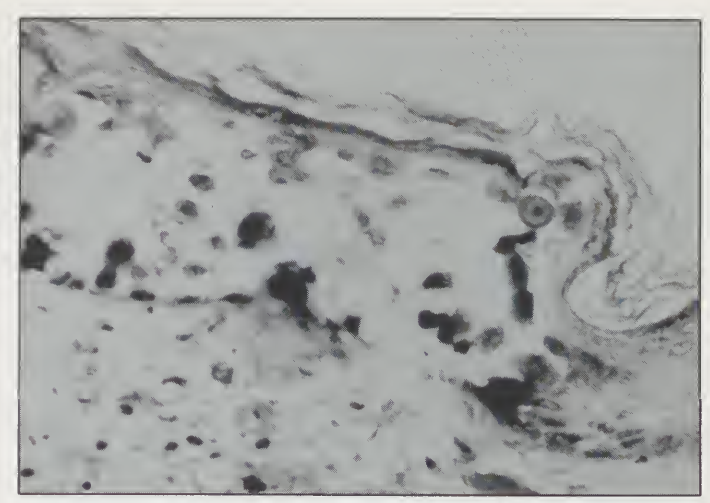


Figure 4. Acantholitic epidermal vesicle: Note the arrow is pointing to intranuclear inclusion.

the nurses and the physician involved in the care of this patient.

After a careful study of gross, microscopic findings, negative blood cultures, dengue titers and patient's previous exposures; the final diagnosis was a Purpura fulminans secondary to varicella infection.

Discussion:

Purpura fulminans in adults has been rarely reported (Ref 3, 4, 5 and 6). The majority of cases occur in the pediatric age. The disorder is characterized by the development of a rapidly progressive ecchymotic area of the skin and disseminated intravascular coagulation (DIC).

Hjort et al (Ref 2) were the first to delineated its characteristics features clearly :

1) The usual occurrence in young children.
2) The frequent history of antecedent preparatory disease most commonly a bacterial or viral infection.
3) The sudden development during an otherwise unremarkable convalescent disease of progressively enlarging purplish black areas of hemorrhagic skin necrosis, sharply demarcated from surrounding skin by a narrow red borders.
4) Wide spread dermal vascular necrosis.
5) The significant usual absence of clinically significant thrombohemorrhagic manifestation in organs other than the skin.
6) Marked thrombocytopenia and hypofibrinogenemia.

The pathogenesis is poorly understood. Its development resembles a syndrome of skin necrosis produced in laboratory animals: the Local Shwartzman reaction. This reaction is one of hypersensitivity with an alteration of blood coagulation. It is observed to occurs in human subjects with severe impairment of the

protein C anticoagulant pathway (Ref 8). This reaction has many similarities with purpura fulminans including an essential dermal histopathological picture associated with disseminated intravascular coagulation (Ref 7).

Francis (Ref 8) summarized the possible pathogenesis as follow:

1) Immunologic stimulation of the skin by antecedent infection or allergy leads to local elaboration of interleukin 1 and tumor necrosis factor.
2) These cytokines induce procoagulant and antifibrinolytic changes in the dermal vascular endothelium and migration of leukocytes,
3) Induction of dermal endothelial tissue factor expression by cytokines leads to initiation of clotting in the dermal vasculature. Secondary consumption of protein C, protein S and antithrombin 3 occurs; establishing a vicious circle.
4) Genetic or acquired abnormalities in endothelial function and cytokine secretion.

In our patient varicella was identified as the etiologic agent In cases reported since 1964 about 10 cases of varicella purpura fulminans has been reported mostly in the pediatric age (Ref 8 and 9). It has been postulated a viral invasion of endothelial cells may occur in varicella (Ref 9 and 10). The severity of this infection in our patient may be linked to old age, general state of health and use of immunosuppressants.

Other precipitating causes of Purpura fulminans has been discussed in literature as Phenytoin, N. meningitis, Staphylococcus albus, group a and b Streptococci, Streptococcus pneumonia, H. influenza, H. aegyptius, Klebsiella, E. coli, Rickettsia rickettsi and Aeromonas hydrophila (Ref 8, 11 and 12). Purpura fulminans is a rare condition in adults. The diagnosis and underlying condition should be considered in those patients with disseminated intravascular coagulation and extensive skin necrosis.

Resumen: **Se presenta a un hombre de setenta años con diagnóstico de Púrpura fulminans secundario a infección con varicela. Se hace repaso de literatura y la patogénesis es brevemente discutida.**

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Case Report:

Thoracic spine osteochondroma causing spinal cord compression. An unusual cause of paraparesis

Orlando De Jesús, M.D., Nathan Rifkinson,M.D., Pablo Acebal, M.D.

Summary: **A case of a thoracic osteochondroma with compression of the spinal cord is reported. The neuroimaging studies are descibed.**

Key Words: *Osteochondroma, Thoracic spine, Magnetic resonance imaging (MRI)*

Introduction

Osteochondromas are benign bone tumors which are seldom brought to neurological attention. Rare case reports, however, disclose their presence in vertebra (with spinal cord compression), skull base (with intracranial extension), parietal bone, sella turcica, first rib (with brachial plexus compression) and anterior cervical vertebra (with dysphagia). This tumors may present as a solitary lesion or as multiple lesions (multiple exostosis or osteochondromatosis) which shows an autosomal dominant inheritance with variable penetrance. They occur most frequently in the cervical spine and rarely cause neurological symptoms, but when it does, surgical decompression of the neural elements is indicated. We present a case of a solitary osteochondroma of the thoracic spine causing paraparesis in a young adult patient. The magnetic resonance imaging (MRI) findings of spinal osteochondromas are described. A literature review showed only a few cases in which the MRI was used in the diagnosis of spinal osteochondromas.

Case Report

A 22 year old female without history of systemic disease was doing well until she slipped and start complaining of left leg weakness. Four days later she had marked weakness of both lower extremities and was unable to stand, but had no sensory or sphincter deficits. Dorsal, lumbosacral X-rays, and lumbar computer tomography (CT) scan done at another hospital were interpreted as normal. She was started on physiotherapy without any improvement. She was then referred to the University Hospital.

On admission, her physical examination showed inability to elevate the lower extremities against gravity with normal motor function of the upper extremities. Proprioception, pain and vibratory perception were diminished on both legs. She showed spasticity of the lower extremities, non sustained ankle clonus, hyperreflexia at the knee jerks, and bilateral Babinski signs. Spinal tap, HIV test, ANA test, circumoval test, and Vitamin B 12 levels were all within normal limits.

Review of the thoracic spine roentgenogram showed an abnormal round calcification in the posterior portion of the spinal canal between the T3 and T4 vertebral bodies (Fig. 1). A thoracic MRI showed an epidural intraspinal mass compressing significantly the spinal cord. The lesion appears as a high signal intensity on the T_1-weighted images, (Fig. 2A) as intermediate signal intensity on the proton density image, (Fig. 2B) and as a low signal intensity on the T_2-weighted images. These findings are similar to the ones found in normal spinous process and laminae.



Figure 1. ***Dorsal spine x-ray showing the round calcification (arrow) posterior to the T3-T4 vertebral body.***

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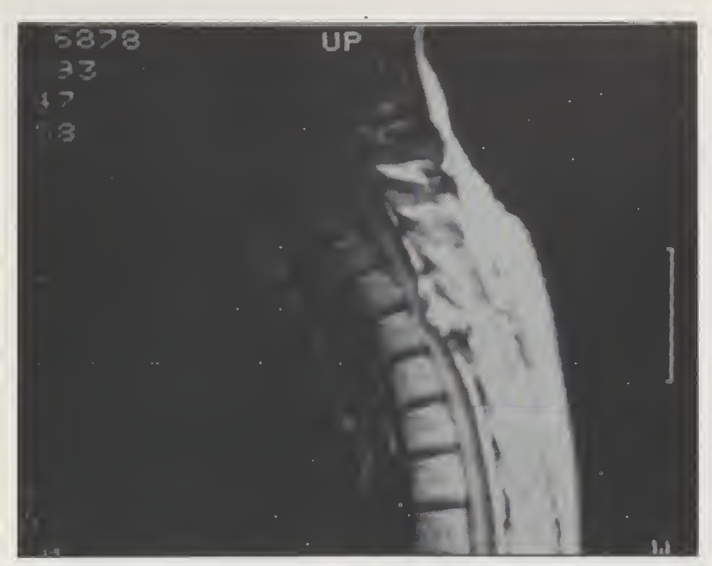


Figure 2A.

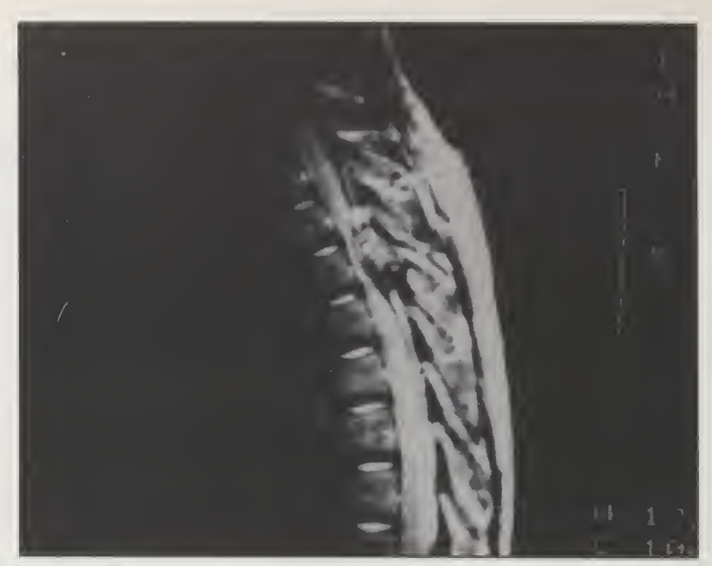


Figure 2B

Epidural lesion compressing posteriorly the thoracic cord. A: Sagittal T1 MRI (TR 610 TE 20). B: Saggital proton density (TR 2000 TE 45).

Through a bilateral T3-T4 laminectomy, a sessile 1.5 x 1.0 cm. epidural cartilage-capped bony mass was found attached underneath the right T4 laminae and was totally excised. The cord showed an immediate expansion and pulsations after decompression. Pathology confirmed the diagnosis of osteochondroma (Fig. 3).

Six months after the surgery, she is walking without help and the sensory function had returned to normal.

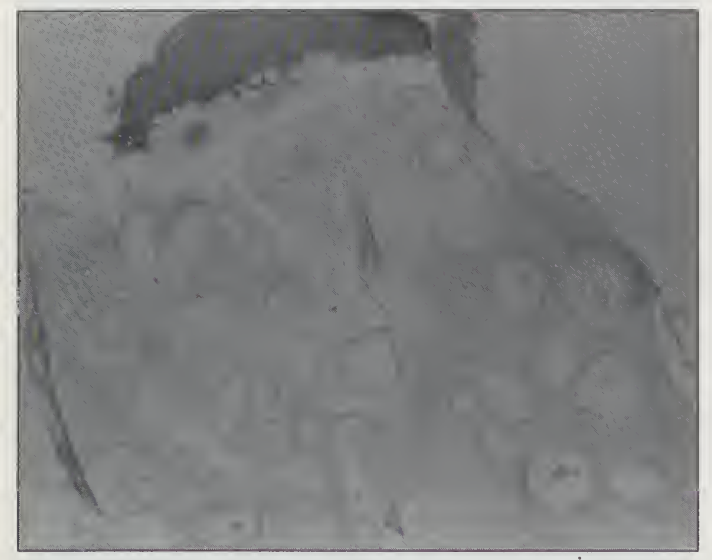


Figure. 3. ***Photomicrograph of the surgical specimen (H & E, X 150) showing the bony trabeculae and cartilaginous cap.***

Discussion

Osteochondromas represent 8.5% of all bone tumors and 36% of all benign tumors.(1) Spine osteochondromas are rare and occur in approximately 1 to 4% of all spinal tumor cases(l), and in 6.8% of all benign primary spinal tumors(2). They are solitary in approximately 73% of the cases and are multiple in 27%.(3) There is a male to female preponderance of 1.5:1. Most patients are diagnosed in their twenties, but patients with multiple exostoses are on the average younger than patients with solitary lesions. Malignant transformation rarely occurs, but is more common in the multiple exostosis cases.(3)

Histologically it is a bone-like outgrowth with a cartilaginous cap. The cortex and medullary cavity are contiguous with those of its bone of origin. It is believed to arise through the lateral displacement of a portion of the epiphyseal growth cartilage.(1) An anomalous foci of metaplastic cartilage in the periosteum will then grow by progressive endochondral ossification.(3)

Our case shows a young woman that presented with progressive paraparesis. The etiology was not initially recognized probably because of the history of trauma, but upon review of the original X-rays, a thoracic lesion was noted. The MRI, although not specific for a osteochondroma, showed the epidural lesion. She had a marked recovery following the surgery.

CT and MRI studies show the tumor extent and its relationship to the vertebral and neural elements. Wen et al. presented a case in which the MRI showed a lesion which have a low signal intensity on T_1-weighted image and a high signal intensity on the proton density images.(4) This differs from our case in which the T_1 weighted image shows a high signal intensity lesion and the proton density and the T_2-weighted image shows an intermediate and low signal intensity lesion respectively. Moriwaka et al. presented a case in which the extradural mass was shown as a hlgh signal intensity lesion on the T_1-weighted images and a central high signal intensity core surrounded by a ring-like or semicircular low signal intensity area on the T_2-weighted images.(5) Emanuelson et al. reported a case in which the lesion presented as a high signal intensity on the T_1-weighted image.(6) (Table 1).

More than 130 cases of spinal osteochondromas

Table 1.
MRI findings in spinal osteochondromas

	Present Case	Wen et al. 1989	Moriwaka et al. 1990	Emanuelson et al. 1994
T1-weighted image	high signal intensity	low signal intensity	high signal intensity	high signal intensity
Proton Density	intermediate signal intensity	high signal intensity	——	——
T2-weighted image	low signal intensity	——	central high signal intensity core, peripheral low signal intensity	——

have been reported. Roblot et al.(3) and Albrecht et al.(1) have revised the distribution of solitary lesions. They have found that 50% of the cases are cervical, in which the C2 vertebrae is the most frequently affected. The thoracic spine was involved in 20% to 26% of the cases, the lumbar spine in 23% to 38%, the sacrum in 0% to 3%, and the coccyx in 1%. This distribution may be related to the mobility of the various segments of the spine, in which the cervical spine is the most flexible and mobile; the greater mobility and flexibility are associated with greater vertebrae which could lead in turn to microtrauma with some displacement of the epiphyseal cartilage.(1)

The spinal osteochondromas rarely cause neurological symptoms. When they do occur, radiculopathy, secondary to spinal root compression is the most common presentation, but myelopathy secondary to spinal cord compression is seen more frequently in case of multiple exostoses.(7) Only half of the solitary osteochondromas give rise to spinal cord compression, whereas osteochondromas from multiple exostoses are almost always compressive.(3) In 1907, Ochsner and Rothstein reported the first case of an osteochondroma causing neurological symptoms which was surgically treated by decompression.(8) Neurological symptoms are usually progressive, but in some cases they have been precipitated by a fall (4) or by hyperextension of the neck(9).

Surgical resection is indicated to decompress the neural structures and to prevent malignant transformation.(10) Appropriate use of powered surgical instruments allows bone removal with minimal manipulation of the spinal cord in the tight thoracic canal.(7) Surgical outcome is rewarding with significant improvement, even in long-standing deficits. An incomplete excision of the cartilaginous cap can lead to recurrence.(1) Although they usually cease to grow after puberty when the epiphyseal plate closes, asymptomatic lesions with significant compromise of the spinal canal should undergo early prophylactic surgery.(4)

Resumen: **Se presenta un caso de osteocondroma torácico con compresión al cordón espinal. Los estudios neuroradiológicos son reportados.**

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Special Articles:

Neuronal Intestinal Dysplasia: A Role for Surgery?

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Summary: **Neuronal intestinal dysplasia (NID) is a poorly understood colonic motility disorder with characteristic histopathological findings and clinical presentation. It is often associated with Hirschsprung's disease (HD) and can constitute a cause of failure of clinical improvement after adequate resectional pull-through surgery. Other conditions associated with NID are: Chronic Intestinal Pseudo-obstruction (CIPO), anorectal malformations and Multiple Endocrine Neoplasia (MEN) II syndrome patients.**

To increase the diagnostic yield of NID the pathologist should be aware and use histochemistry evaluation of the rectal biopsy specimen in patients with history of constipation or unexplained bouts of diarrhea. Adequate sampling of the temporary proximal colostomy done to HD patients should be examined for NID pathological changes.

Treatment has centered around the clinical picture with most cases managed medically with prokinetic agents, colonic irrigations, and bowel cathartics until improvement and normalization of histology occur. There is evidence of progressive maturation of the enteric nervous system with time. Surgery is indicated for patients with severe clinical deterioration after failed medical management.

Introduction

During the past two decades motilities disorders of bowel function in infants and children have been distinguished with the help of histochemical, radiographics and manometric studies performed to patients. The surgeon is occasionally asked to render care to many of this unfortunate children in the hope that sphincterotomy, enterostomies, resections, and pull-through surgery can yield a cure or improvement of symptoms.

Motilities disorders plague the clinical picture of the child with recurrent bouts of constipation, diarrhea, enterocolitis, bloody stools, abdominal distension, colicky abdominal pain, and encopresis. Symptoms can be present since birth, or develop later in the child's life. There is progressive constipation and megacolon formation in many of this infants.

Normal propulsive motility of the gastrointestinal tract is dependent on normal anatomy, musculature and innervation of the bowel wall. Control is exerted by extrinsic and intrinsic nerves, chemoreceptors and mechanoreceptors located in the bowel wall that unfortunately are practically inaccessible for investigation and experimentation[1].

Gastrointestinal motility disorders are viewed as those about the esophagus (i.e. achalasia), gastropyloric area (i.e. hypertrophic pyloric stenosis), small bowel, colonic (Hirschsprung's disease, neuronal intestinal dysplasia), and pseudo-obstructive problems such as the adynamic bowel of prematures and chronic intestinal pseudo obstruction (CIPO)[1].

Using colorectal biopsy specimens patients with inborn errors of colonic innervation have been classified as: aganglionosis (52%), hypoganglionosis (5%), and neuronal intestinal dysplasia (43%). An additional half of the biopsies will not fit this classification due to moderate malformation such as dysganglionosis, hypogenetic and heterotopic nerve cell characteristics[2].

NID

Neuronal intestinal dysplasia (NID), first described by Meier-Ruge in 1971, is a poorly understood colonic motility disorder of neuronal structure in the bowel wall[3]. NID is characterized by several histochemical and pathological findings such as:

1- hyperplasia of submucous and myenteric plexus with formation of giant ganglia,
2- isolated ganglion cells in the mucosal lamina propia and between muscle layers of muscularis mucosa,
3- moderate elevation of acetylcholinesterase in the parasympathetic fibers of mucosal lamina propia and circular muscle, and
4- hypoplastic or aplastic myenteric plexus sympathetic innervation[4,5].

The most characteristic alteration identified is acetylcholinesterase elevation of parasympathetic fibers, and the less reliable diagnostic feature, the giant ganglion cells. Not all patients demonstrate the whole spectrum of histological traits depicted above.

The etiology of NID has eluded us. The development of NID in previously normal bowel, the association

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with other intestinal malformations, and the clinical heterogeneity of this patients suggest that NID is a reaction of the neural intestinal system caused by congenital obstructive factors or inflammatory disease[6]. Major histocompatibility complex II expression has been found markedly elevated in Hirschsprung's Disease (HD) and NID cases (normally nerve tissue is deficient of the antigen). This has lent support that the bowel may be highly susceptible to an abnormal response of immune origin[7].

Initially described as a localized and disseminated form of disease, Fadda in 1983 re-classify it into two types (A and B), with a common clinical feature in both: chronic constipation and megacolon[8]. In type A the disease is confined to the colon causing a functional bowel obstruction with acute onset. Symptoms are present since birth and comprise: constipation, ulcerative colitis, painful straining, and bloody stools. Contrast studies of the colon display rigid, spastic segmental contraction of bowel, ulcer, erosions, and no peristalsis. Manometric studies will show absent recto-inhibitory reflex[4, 5,8,9,10]. Histologically there is aplasia or hypoplasia of myenteric sympathetic innervation and increase acetylcholinesterase activity in lamina propia, circular muscle and muscularis mucosa[5,9]. Ganglion cells are present, excluding the diagnosis of Hirschsprung's disease (HD).

Type B NID is more common, symptoms commence around six month of life, there is constipation and adynamic distal bowel with megacolon undistinguishable from Hirschsprung's disease. Histology is characterized by dysplastic parasympathetic submucous plexus with giant ganglion cells and hyperplasia, elevated acetylcholinesterase levels, and isolated ganglia in lamina propia[5,8,9,10]. This type is more commonly found associated to HD, anorectal malformations, MEN IIB syndrome and CIPO[8]. Manometry shows that these patients have non-proportional relaxation of the internal anal sphincter, anorectal hyperexcitability, and increase amplitude of anorectal fluctuations[11].

NID and HD

It is estimated that isolated NID is eight time rarer, and affects longer segments of bowel than Hirschsprung's Disease (HD)[5,12]. Both disease processes have been reported in 20-75% of patients[10]. This has shifted the attention to patients with HD who persists with clinical problems after adequate pull-through resection.

HD is characterized by lack of enteric ganglion cells, hyperplasia of abnormal nerve fibers and a non-propulsive, non-relaxing segment of bowel. Classically the etiology is attributed to a failure in cranio-caudal migration of parasympathetic neural crest cells to the distal bowel. Factors leading to failure of differentiation after migration of neural crest cells could be responsible for HD complex etiology. A plausible explanation for the failure of relaxation of the bowel involved is a deficiency of enteric inhibitory nerves that mediates the relaxation phase of peristalsis. This nerves are intrinsic to the gut and are classified as non-adrenergic and non-cholinergic. Nitric oxide (NO) has recently been implicated as the neurotransmitter that mediates the relaxation of smooth muscle of the GI tract in HD. It's absence in aganglionic bowel might account for the failure of relaxation during peristalsis. Besides, adhesions molecules (absent in aganglionic bowel) during early embryogenesis might restrict the neuro-ectodermal origin involved in the initial contact between nerves and muscle cell (synaptogenesis) suggesting that developmental anomaly of innervated muscle and absent NO causes the spasticity characteristic of HD[1,2,7,13,14,15]. Initial management consist of leveling colostomy in ganglionic bowel with later pull-through surgery.

Patients with symptoms of obstruction (constipation, enterocolitis) persisting after surgery for HD could be hastened by: mechanical (anastomotic stricture) reasons, functional (NID, residual aganglionosis) problems, and infectious etiology (Clostridium difficile)[16]. Sonographic follow-up analysis of colonic motility in patient with HD and NID after corrective surgery for HD shows that with time the dysmotility changes of the ganglionic NID colon improves[17]. Retrospectives studies evaluating the influence of retained NID colon in patients with repaired HD have identified that the NID segment of bowel can be preserved without increasing the risk of morbidity or mortality to them[18]. The actual incidence of NID associated with HD could be explored by monitoring the histological findings of the proximal bowel during initial colostomy construction. Biopsy of this colostomy segment should warned us of the presence of NID changes.

NID and CIPO

Chroric Intestinal Pseudo-Obstruction (CIPO) is a rare disorder of intestinal motility in infants and children characterized by recurrent attacks of abdominal pain, distension, vomiting, constipation and weight loss lacking obvious mechanical lesions. The disease can be familial or sporadic. Suggested etiology is degeneration of enteric nervous or smooth muscle cells. The diagnosis is based on history, physical exam, radiographies and motility studies. X-Ray hallmarks are: absent strictures, absent, decreased or disorganized intestinal motility, and dilated small/ large bowel loops. Associated conditions identified in 10-30% of patients are bladder dysfunction (megacystis) and neurological problems. Histologic pattern portrayed: myenteric plexus hyperplasia, glial cell hyperplasia, and small ganglion cells (hypoganglionosis)[19,20,21].

Management is primary supportive: intestinal decompression (NG), long-term TPN and antibiotic

prophylaxis[22 23]. Motility agents are unsuccessful. Venting gastrostomy with home parenteral nutrition has shortened the high hospitalization rate associated to this disease process[24]. A similar condition can be seen in early fed prematures due to immaturity of intestinal motility.

NID accounts for 30% of patients with CIPO symptoms as attested by histologic sections[25]. It is illogical to relate symptoms of dysmotility to submucous plexus changes seen on biopsy, and almost entirely ignore the myenteric plexus that is ultimately concerned with colonic motor activity.

Management of NID

Management has switched from a more aggressive attitude to a more conservative approach. Repeated bouts of obstructive episodes have been an indication for colostomy, and more serious symptoms have ended with resection[5]. The indications for surgery in NID cannot be sustained alone on the histochemical picture of the biopsy specimen, but on the clinical situation of the patient, since NID is best a histopathologic condition rather than an unique clinicopathological entity[26,27,28].

Type A NID with its acute fulminant course during the neonatal period has an unfavorable progression with early indications for surgery. Colostomy is reserved for neonatal obstruction with associated severe enterocolitis. It is probable that many sick infants will show a clinical picture similar to severe necrotizing enterocolitis before being diagnosed the condition. A word of caution should be exerted against extensive colonic resections for this disease process. This could impair colonic water absorption, stool consistency and may overwhelm fecal incontinence problems[28].

Type B NID runs a more chronic path and management is more conservative. There is clinical evidence gathered that the colonic motility disturbance associated matures and improves by the fourth year of life of the child[5,10]. If problems persists beyond the fourth year of life more aggressive management is warranted. In general patients can be managed with saline colonic irrigations, TPN, high dose lactulose, and paraffin oil until clinical improvement and normalization of biopsy results are obtained[28,29]. Prokinetic agents (cisapride) can be of help in some groups of patients, with the addition of neostigmine in clinically resistant cases[16]. Surgery is rarely deemed necessary in this subgroup of patients.

Conclusions

Neuronal intestinal dysplasia is a poorly understood colonic motility disorder with characteristic histopathological findings and clinical presentation. It is often associated with Hirschsprung's disease and can constitute a cause of failure of clinical improvement after adequate resectional pull-through surgery. Other conditions associated with NID are: CIPO, anorectal malformations and MEN II syndrome patients.

To increase the diagnostic yield of NID the pathologist should be aware and use histochemistry evaluation of the rectal biopsy specimen in patients with history of constipation or unexplained bouts of diarrhea. Adequate sampling of the temporary proximal colostomy done to HD patients should be examined for NID pathological changes.

Treatment has centered around the clinical picture with most cases managed medically with prokinetic agents, colonic irrigations, and bowel cathartics until improvement and normalization of histology occur. There is evidence of progressive maturation of the enteric nervous system with time. Surgery is indicated for patients with severe clinical deterioration after failed medical management.

Resumen: **La displasia neuronal intestinal es un desorden de motilidad colónica pobremente conocido con hallazgos histopatológicos y presentación clínica característica. Está asociada a la enfermedad de Hirschsprung's y constituye una de las causas de fracaso en mejoría clínica luego de cirugía adecuada. Otras condiciones asociadas a la displasia neuronal intestinal son: la pseudo-obstrucción crónica intestinal, malformaciones anorectales, y el síndrome MEN tipo II.**

Si queremos aumentar la tasa diagnóstica de esta condición debemos evaluar las biopsias rectales con estudios histoquímicos en pacientes con historial de estreñimiento o diarreas persistentes sin explicación obvia. También debemos evaluar el estoma proximal construido en pacientes con la enfermedad de Hirschsprung's para buscar estos cambios histopatológicos.

El manejo depende del cuadro clínico del paciente. La mayoría se manejan con agentes proquinéticos, irrigaciones colónicas, y ablandadores de excreta hasta que ocurre mejoría clínica y normalización de la histología. Se ha visto maduración progresiva del sistema nerviosos entérico con el tiempo. La cirugía esta indicada para aquellos niños con deterioro clínico continuo luego de tratamiento médico.

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Artículos Especiales:

Hantavirus Infection: A Rare Disease Which You Should be Aware

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Summary: **Hantavirus infection is cause by viruses classified in the Hantavirus genus, of the Bunyaviridae family. Recently a new hantavirus has been recognized. Specific endemic areas has been identified, however a new outbreak was identified in the southwestern of the United States. The principal vectors are rodents. Human infection occur by aerosol from rodent urine, saliva, feces and rodent bites. The infection classically is manifested clinically by fever, hemorrhage and renal failure. The recent outbreak was associated with acute respiratory illness without renal involvement. The treatment is with intravenous Ribavirin. Specific recommendations for prevention and control are presented here in.**

Introduction

Diseases caused by the hantavirus infection are referred now as Hemorrhagic Fever with Renal Syndrome (HFRS).[2,4,6,8,9] The viruses causing HFRS all belong to the Hantavirus genus, in the Bunyaviridae family. [14,16] Approximately 200,000 cases of HFRS occur annually, with a mortality of 2% to 10%.[2] The clinical severity varies from a severe form, with hemorrhagic manifestations and significant mortality, to a mild form, epidemic nephropathy, with less hemorrhagic manifestations and no or low lethality. [2,14]

In 1993 an outbreak of Hantavirus infection has been investigated in Southwestern United States.[11,12,13] The outbreak is presented with respiratory illness, associated to a new recognized Hantavirus.[15,17,21] We want to bring to you attention the condition presented in a limited perspective.

Epidemiology

Known hantavirus infections of humans occur primarily in adults and are associated with domestic, occupational, or leisure activities that bring human into contact with infected rodents, usually in rural areas.[17]

Evidence of hantavirus infection are found in man and rodents in most part of the world. [2,14] Studies in North America have led to the isolation of hantaviruses from several species of rodents and human serologic surveys have demonstrated antibodies in geographically and occupationally diverse groups. [2,6,9]

Recently several state health department in Southwestern, USA, investigated an outbreak of acute respiratory illness related with a newly recognized hantavirus.[11,12,13,15] Of the 36 persons diagnosted 14 died. [12,15]

Clinical Manifestations

Hantavirus infection produce a spectrum of illness, with specific manifestations depending on the particular virus involved. [1,2,6]

The incubation period of Hantavirus Disease (HVD) is thought to be about 2-3 weeks, and in the severe form there os am abrupt onset with headache, backache, fever, sorethroat, rigor, anorexia, nausea and vomits.[7,9,21] Physical signs included conjunctival injection or hemorrhage, abdominal tenderness, pharyngitis, facial erythematous flushing, cervical adenopathy and periorbital edema.[1,7,9] At about 5-7 days hypotension develops, probably secondary to widespread capillary permeability, accompanied by thrombocytopenia.[1,7,9] Moderate to severe renal failure ensues manifested clinically by the onset of oliguria or anuria.[1,7] The hemorrhagic features, most common in the second week, consist of a petechial rash, palatal petechia and in some cases ecchymoses.[1,7,9] Diuresis follow toward the end of the second week and herald recovery. [7,9] Hypertension secondary to chronic renal disease, caused by hantavirus infection, has been suggested.[1,6,14]

The major complications of the hantavirus infection are pulmonary edema, cerebral edema and hemorrhage, and shock.[1,9] Pulmonary edema commonly occur during the oliguric and diuretic phase.[1,9]) The changes associated to pulmonary edema predispose the patient to the development of secondary bacterial infection.[1] The uremia may act on already-damage vessels increasing the risk of cerebral edema and hemorrhage.[1] Hemorrhage can occur also intrarenal with retroperitoneal extension.[9] The shock, usually occurring during the oliguric and diuretic phases, may be consequences of bacterial sepsis or fluid and electrolyte derangements.[1]

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The new outbreak of Hantavirus infection in the Southwestern region of the United States, although shares some clinical features with syndromes caused by hantaviruses, it lacks the prominent renal involvement and hemorrhagic manifestations previously reported with these agents.[13,21] The cases reported were characterized by abrupt onset of fever, myalgia, headache and cough, followed by the rapid development of respiratory failure. [1,13,21]

Diagnosis

The application of serological tests to the described clinical setting will identify unsuspected cases of hantavirus infection.[9] The diagnosis can be confirmed by a positive serologic test of IgM antibody to hantavirus by ELISA or by a rising titer of IgG antibody to hantavirus using the indirect immunofluorescent assay technique.[9,14] RNA probes have also been developed against some virus serotypes and may be more sensitive than serology for early diagnosis.[7]

Hantavirus have only been successfully cultivated in a few cells with Vero E_6 most commonly used.[14] Virus isolation from patients on animals usually requires several weeks of blind passage before viral antigens can be detected in the cells.[14]

Awareness of the manifestations and geographical spread of the virus is very important.[7]

Management

The management of Hantavirus disease consist mainly of careful fluid balance and circulatory support with more active intervention if renal and/or respiratory failure supervenes.[7,11] Ribavirin, if given within 5 days of onset, has been of some use in severe cases.[7]

Recommendations

As physicians we need to become more aware of hantavirus infection syndromes.[9] Given modern worldwide air travel along with the incubation period for hantavirus infection syndromes, the potential exist for travelers returning from endemic areas to present with this illness to unsuspecting U.S. or Puerto Rican physicians.[9] Due to the fact that rats are the principal reservoirs of hantavirus, rodent control measures need to be maintained or instituted. [2,14]

Recently recommendations for prevention and control of hantavirus infection has been made by the Center for Disease Control in the United States.[17] It is based on principles of rodent and infection control. The recommendations contain specific management guidelines to reduce rodent shelter and food sources, for eliminating vectors inside the house, and to avoid them from entering the home.[17] Also specific recommendations has being established for occupational exposure to wild rodents and precautions for campers and hikers.[17]

Resumen: **La infección por Hantavirus es causada por varios virus clasificados en el género Hantavirus, de la familia de los Bunyaviridae. Recientemente un nuevo hantavirus ha sido reconocido. Las regiones endémicas han sido reconocidas, sin embargo un nuevo brote ha sido identificado en el suroeste de los Estados Unidos. Los vectores principales son los roedores. La infección en el humano ocurre a través de aerosoles contaminados con orina, saliva y heces fecales y a través de mordedura de roedores infectados. La infección clásicamente se manifiesta con fiebre, hemorragias y fallo renal. El reciente brote está asociado a una enfermedad respiratoria aguda sin envolvimiento renal. El tratamiento es con Ribavirin endovenosa. Se presentan las recomendaciones del Centro para el Control de Enfermedades para la prevención y el control de esta infección.**

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Etica Médica:

Del Paternalismo a la Democracia: Beneficencia - Persona y la Bioética Actual en Puerto Rico

Elena Lugo, Ph.D.

Introducción

La medicina contemporánea es claramente ciencia aplicada, técnica sofisticada, arte, particularmente en la comunicación, y un conjunto de virtudes morales. Su práctica o gestión clínica es compleja en cuanto que es conocer, actuar y evaluar con diversas orientaciones: hacia la enfermedad, hacia la vivencia personal del paciente, y hacia la comunidad. También supone ésta varias finalidades de difícil integración. La práctica clínica de un lado presenta finalidades de proyección pública exigentes de debates sociales sobre opciones en cuanto a costo económico, acceso o distribución de recursos, calidad y prioridades en cuanto a la prestación de servicios. Pero, de otro lado la práctica clínica presenta finalidades de proyección privada y personalizada, exigente de decisiones responsables sobre bienestar individual en el contexto de una relación interpersonal de médico y paciente.

La sociedad puertorriqueña reconoce y/o exige el cumplimiento de los deberes que emanan de ambas finalidades - sociales e individuales. La sociedad exige que la medicina se preocupe de experimentar la más sofisticada tecnología al costo más bajo posible y uniformemente distribuida para beneficio de una mayoría sin por ello descuidar la calidad. Pero la sociedad también espera que la medicina se preocupe intensamente por responder a las necesidades de los individuos de acuerdo a sus creencias y deseos. En todo caso - aspecto comunitario y aspecto individual - la práctica médica moderna también centra su atención en la enfermedad como categoría científico-técnica.

Coordinar e integrar la dimensión social y la individual de sus finalidades exige de la medicina contemporánea una reflexión cuidadosa sobre su responsabilidad comunitaria a la vez que sobre su dedicación a la persona del paciente. Pero esta reflexión supone un estudio del cuidado de la salud en el contexto cultural que le sirve de sistema de valores, política pública, recursos prácticos. En Puerto Rico la hemos empezado. Esta reflexión exige también de la medicina una renovación de la ética inherente o interna al acto clínico como realidad empírica y práctica de situación y vivencia personal y comunitaria. La renovación supone elaborar una teoría filosófica de los componentes inherentes y diferenciados según la práctica médica clínica. Esta será la tarea que aquí me propongo. Examinamos seguidamente la ética médica tradicional fundamentada en una interpretación del principio de beneficencia, y luego la ética dominante en los últimos 20 años inspirada en un modelo legal de derechos y auto-determinación. La crítica filosófica mostrará que ninguna de las dos modalidades resulta adecuada para coordinar responsabilidad pública y derechos individuales. Ambas conducen a una polarización de la relación médico-paciente confiriendo poder de decisión a uno de los dos componentes de la relación pero sin ofrecer criterio o fundamentación suficientemente argumentada. Al final de mi presentación haré algunas sugerencias para establecer una fundamentación a la ética clínica apropiada a los retos de la medicina contemporánea que considero propia a la cultura puertorriqueña. Más que una aplicación de teorías éticas mi presentación intenta ser una reflexión filosófica sobre las exigencias éticas de la práctica médica. Para lo cual examinaré el concepto de persona como individuo y miembro de la comunidad inspirada en la corriente de la ética-del-cuidado que responde a las condiciones de vulnerabilidad y dependencia de parte del paciente. Luego destacaré la importancia de regresar a la visión aristotélica de la virtud como integrante de la servicialidad que corresponde a la vulnerabilidad del paciente. Finalmente, mencionaré la urgencia de examinar el bien común en relación al principio de justicia en el contexto de una reflexión cultural con el énfasis colocado en la instituciones como entidades morales y no tanto en las reglas legales.

Etica médica tradicional

Represento esta larga tradición que se remonta al periodo clásico en el Juramento de Hipócrates con una metáfora[1], a saber: **Paternalismo.** La metáfora - paternalismo se origina en la vida familiar tradicional en la cual predomina la autoridad paternal y el cuidado y

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[1]metáfora- modo de pensar, entender y expresar algo en términos de otro concepto quizás mejor conocido. La metáfora destaca similaridades entre lo que los conceptos representan y oculta sus disimilaridades.

confianza en los vínculos personales. Paternalismo puede definirse como el principio y práctica de administrar o gobernar (inspirado en la benevolencia como un padre/madre intentando suplir las necesidades y regular la vida de un grupo[2]. Aplicado al cuidado de la salud en el contexto clínico se destacan dos semejanzas: 1) el médico comparte los motivos, intenciones y acciones benevolentes que caracterizan a los padres en relación a sus hijos o a los niños menores de edad. 2) el médico toma todas o casi todas las decisiones en beneficio de sus pacientes sin necesidad de consultarles. Al paciente se le percibe - si no como niño - sí como un ser pasivo o víctima de una enfermedad o condición fuera de su responsabilidad personal. Es decir, el sujeto médico es un **paciente.** La relación médico-paciente es asimétrica, desigual en cuanto a conocimiento y poder. El médico domina y controla la relación inspirado en "hacer el bien y no hacer daño" - La vinculación de persona a persona en igualdad por concepto de dignidad y autonomía queda oculta en esta metáfora.

Como ya he indicado, la ética médica tradicional tiene su origen en la medicina misma y se inspira en la norma hipocrática -"beneficiar al enfermo de acuerdo a la habilidad y juicio del médico"..."ayudar o al menos no hacer daño[3]" - y proteger de daño e injusticia, inclusive de proteger al enfermo de su propia ignorancia, negligencia y deficiencia. Esta tradición venera la individualidad de la relación médico/ paciente, protege el secreto profesional al igual que el privilegio terapéutico, destaca la nobleza del médico y respeta su autoridad en cuanto orientada principalmente hacia el bien del paciente. El médico goza del prestigio tradicionalmente reconocido al sacerdote o ministro religioso y al educador.

De acuerdo a la metáfora expuesta el médico es un experto de autoridad en el orden del conocer científico-técnico y el paciente asume una posición de dependencia en cuanto a determinar el beneficio o mejor interés del paciente. Por ejemplo:

a) consolar una madre gravemente herida en cuanto a su hija muerta diciendo que sobrevivió el accidente que les ocurrió a las dos.
b) ocultar información sobre el leve riesgo de muerte de la urografía considerada necesaria para el paciente.
c) esterilizar a una dama retardada en contra de su voluntad para evitar un embarazo indeseado e irresponsable.
d) amputar extremidades congeladas y con gangrena de un desamparado quien se resiste a ello.

En las cuatro situaciones ilustradas el médico identifica el **bien** con beneficio clínico o el **mejor interés** del paciente con efecto terapéutico El Principio de Beneficencia queda enunciado como fundamento a la intervención paternalista. Sometamos la metáfora del paternalismo a una crítica. Aun sin poder aquí considerar distinciones entre las variaciones del paternalismo a saber: puro vs. impuro/duro vs. suave /extendido vs. restringido/directo vs. indirecto/activo vs. pasivo- ofrezcamos unas reflexiones que puedan orientarnos hacia una censura del paternalismo puro, duro, extendido y directo el cual asigna un poder casi exclusivo y amplio al médico sobre, y, a veces, contra las preferencias del paciente. Consideraremos el paternalismo atenuado más adelante al integrarlo con el Principio de Respeto a la Persona.

A modo de enumeración planteo consideraciones de tipo conceptual, legal, socio-cultural, científico-técnico y económico que nos apartan de una aceptación ingenua del paternalismo tradicional.

Conceptual- El concepto del bien articulado en el principio de beneficencia se limita en esta tradición al bien como efecto clínico sin debida atención al bien según preferencia del paciente, el bien de persona en si, o el bien común en cuanto categoría que trasciende a cada individuo.

Legal- El mal uso de la autoridad profesional convirtiendo ésta en poder y dominio sobre la vida del paciente, y los casos de impericia han generado desconfianza y cinismo en la población, y exigido, justificadamente o no, intervención jurídica y legal.

La prensa - no siempre sofisticada en cuanto a la práctica clínica - ha contribuido a propiciar una actitud de reserva ante la autoridad médica. Al mencionar prensa, pensamos en los medios de divulgación que popularizan los conceptos médicos de modo que el público en general se cree - con o sin justificación conocedor de asuntos médico-clínicos.

Socio-cultural- El ambiente cultural en el occidente moderno refleja un pluralismo de sistema de valores sin criterio para fundamentar la autoridad sobre base objetiva y universal. Un cierto liberalismo democrático permite a cada individuo forjar sus metas y propósitos sin sentir obligación ante la naturaleza o la sociedad, destacando la autonomía y derechos individuales como fundamentación de la moral. Se estila más una ética de reglas y procedimientos que de contenido sobre el bien, la virtud, la cultura y principios universales. El secularismo de la cultura reduce la dimensión religiosa y su discurso sobre ideales, significados de carácter comunitario, y la espiritualidad más allá de lo inmediato a la esfera privada de criterio subjetivo ajeno al debate racional y público.

Científico-técnico- Progresos clínicos en la medicina genética y la predictiva conducen a redefinir la enfermedad como un suceso de carácter generacional y exigente de decisión y responsabilidad del individuo en relación a sus antepasados, familia propia y generaciones futuras. La medicina primaria y particular-

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[2]*Childress, James. **Who Should Decide.** New York: Oxford University Press, 1982, pág. 4.*

[3]*Hippocrates, "Epidemics", 1:11 en Hippocrates edición W.H.S. Jones, Cambridge: Harvard University Press 1923, Vol.I, Pág. 165.*

mente si también es preventiva, exige la cooperación del paciente en el plan o rediseño de su estilo de vida, lo cual debe estar bajo su responsabilidad o derecho propio. Los recursos para prolongar la vida y el cuido, intensivo/agresivo de la tecnología actual contribuyen a la distinción clínica entre muerte como estado y morir como **proceso,** dolor como categoría objetiva y sufrimiento como vivencia subjetiva. Ahora bien, proceso de morir y sufrimiento son dimensiones que exigen atención y consulta centrada en el paciente.

Económico- Las leyes del mercado y la comercialización dificultan al médico al igual que al paciente tener la última palabra en el orden ético. Estas consideraciones entre otras que no puedo detenerme para añadir - nos conducen a considerar el modelo actual de ética médica con su metáfora correspondiente según la cual el paciente participa activamente en el cuidado de la salud.

Bioética Actual o en las Ultimas Dos Décadas

Represento esta etapa más reciente y vigorosa de la ética médica con el término "Autonomía" (asociada al sentido democrático de la vida). Autonomía se puede identificar como metáfora derivada de la vida política, originalmente de las ciudades-estados de la Antigua Grecia en cuanto a independientes y soberanas en la determinación de las propias leyes[4]. (**Auto**-propio / **normas**-reglas, ley). La cuestión central en la metáfora es una sobre el poder y control - **¿quién** puede dominar y determinar qué en relación a **quién**?

En el contexto médico-clínico se destaca la autonomía del paciente al cual se le reconocen unos derechos según articulados en la Carta de Derechos del Paciente (Patient Bill of Rights)[5]. Al paciente se le ve como contratante y/o cliente quien determina en condiciones de igualdad la prestación de los servicios médicos. El paciente reclama una igualdad de derechos que funcionan limitando la aplicación del principio de beneficencia según el paternalismo tradicional recién examinado. Al médico se le ve como un facilitador o tal vez técnico complaciendo al sujeto médico en cuanto individuo con derechos a rehusar tratamiento, seleccionar entre alternativas, aun si no necesariamente con derecho a exigir un tratamiento especifico y tal vez, contrario al criterio clínico.

Autonomía en cuanto metáfora refleja un ambiente cultural, pero también se ampara en un principio ético-filosófico, ambos de resultados positivos para la bioética, pero cuyas limitaciones también hemos de señalar. Como ya indicase la metáfora tiene su raíz en el ambiente político de carácter democrático. Se sugiere el modelo legal con su lenguaje de derechos, y la posibilidad de confrontación en la resolución de dilemas morales. En este contexto la relación - médico y paciente, por ejemplo - se establece sobre acuerdos mutuos, observando reglas de procedimiento y cultivando el consenso en caso de conflicto[6]. Predomina una preocupación por lograr el consentimiento ilustrado (informado) al menos según el criterio legal y formal.

La relación médico-paciente refleja una estructura burocrática uniforme y regulada con predominio de los intereses del paciente, pero sin menospreciar los derechos del médico (Principio VI, 1980 - **Principios de Etica Médica** de la Asociación Médica Americana) en cuanto a determinar quienes serán sus pacientes, selección de las condiciones para su tratamiento, y la modalidad terapéutica. De cómo esta relación puede modificarse por fuerzas externas a la relación, hablaré al final de la presentación.

El énfasis en el individuo y sus derechos, la imagen del paciente como consumidor-contratante y exigente podría conducir a un encuentro clínico de egocentrismo voluntarioso de parte del paciente y de apatía y/o menosprecio de la virtud y responsabilidad de parte del profesional. Para evitar un modelo legalista del encuentro clínico es preciso fundamentar el derecho de autonomía en el principio filosófico que lo debe sustentar. De este modo podré más adelante vincular **autonomía** con **beneficencia** apreciando de este modo la contribución permanente de la tradición médica.

Autonomía y/o auto-determinación se debe articular con arreglo al principio de respeto a la persona. Se trata aquí de apreciar al ser humano - potencialidad natural y actualidad - como ser pensante capaz de conceptualizar valores y aceptar el bien como realización se su ser. **Es un ser libre** para realizarse de acuerdo a sus dimensiones espirituales y corpóreas sin cohesión y manipulación externa o interna. Persona incluye aspectos subjetivos para lo cual la ciencia y técnica del médico no son suficientes exigiendo de éste el arte y la virtud . Exige arte para un juicio clínico que pone el conocer científico y la destreza técnica al servicio de la persona sufriente e individual. También exige la virtud de la Empatía. Persona se presente en comunidad con intercambio de derechos y deberes - sean éstos hacia la familia, el círculo cívico, o la sociedad en general. Persona supone proyección en el tiempo y se realiza en etapas. Es un proceso y tarea de disciplina y perfeccionamiento inclusive de la autonomía que admite de desarrollo - es decir, puede sacrificarse o posponerse su expresión en un momento para asegurarla en el futuro o puede cambiar la decisión de un momento a otro. Persona incluye trascendencia de sí en cuanto individuo de intereses centrados en él, y/o para dedicarse a, o servir ideales y el bienestar de otros[7].

La Asociación Médica Americana en sus Principios de Etica Médica (1980 reconoce la integración del Principio de Beneficencia y el Principio de Respeto a

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[4] *Childress, J. op. cit., 59.*

[5] *American Hospital Association, "A Patient´s Bill of Rights" según citado en Beauchamp and Childress.* ***Principles of Biomedical Ethics.***

[6] *Lugo, Elena.* ***Etica Médica.*** *Mayagüez: Editorial Riqueña, 1985, págs. 47-49.*

la Persona - declarando: El objetivo principal de la profesión médica es rendir servicio a la humanidad con pleno respeto a la dignidad del ser humano - para así hacerse merecedoras de la confianza de sus pacientes. A la persona del paciente no ha de usarse como recurso para sus metas - sean éstas científicas o monetarias. Tampoco puede verse al paciente como un conjunto de síntomas carentes de unidad y originalidad personal con sus vivencias subjetivas ante la enfermedad y el dolor y la desintegración de su unidad psico-corpórea. No puede verse como objeto de destreza técnica clínica que se orienta en términos de funciones fisiológicas sino como a un ser vulnerable, debilitado, sufriente.

Las normas éticas que regulan la veracidad y la confidencialidad tienen su fundamento - al igual que la autonomía - en el principio de respeto a la persona. Naturalmente se trata de respeto a la persona en relación al bien según la articula el principio de beneficencia en su sentido pleno. Citamos a Pellegrino y **Thomasma**[8]. 1) Bien médico o efecto resultante de la intervención clínica para lo cual el criterio estrictamente médico tiene la prioridad propia al experto. El médico establece lo que significa inútil o fútil en un tratamiento en cuanto que ni restaura funciones vitales ni detiene su deterioro. 2) **Bien como preferencia del paciente** según expresado con cierto grado de coherencia racional, libre de coerción y en continuidad en el despliegue de la persona. Se trata del bien personal que emana de un consentir razonado y responsable. 3) **Bien** de la persona en cuanto ser de rasgos universales y necesarios - a saber: reflexión, auto-reflexión, autonomía, comunicación interpersonal, temporalidad, trascendencia. El médico debe reconocer que en cuanto tal no es un experto en la filosofía de la persona, y que en una cultura pluralista y liberal la interpretación y ordenación de los rasgos enunciados pueden **variar.** 4) Bien último o dimensión espiritual-religiosa del paciente y del médico en cuanto que sirve de criterio para la valorización de salud, vida, enfermedad, muerte y morir, y para la coherencia y continuidad en la vida. Promover este bien es un deber imperfecto pues supone discreción del médico sobre qué, cuándo, cuánto bien promover.

Determinar el mejor interés del paciente con sus cuatro componentes es un acto difícil de lograr con armonía entre el principio de beneficencia y el principio de respeto a la persona recordando a la vez la relevancia de justicia como principio. Es decir, la intervención médica puede verse en conflicto con el bien según preferencia del paciente. Más aun, en nuestra sociedad se va perdiendo el consenso sobre el bien en si de persona al igual que se ha dificultado la discusión objetiva sobre el bien último.

Hacia una Integración o Hacia una Teoría de la Práctica Médica

La relación clínica entre médico y paciente es asimétrica en cuanto a la función y autoridad de experto propia del médico en contraste a la dependencia del paciente a causa de su enfermedad o dolencia. Pero es también simétrica en cuanto la relación interpersonal de seres de idéntica dignidad. El Principio de Beneficencia regula mejor el aspecto asimétrico y el Principio de Respeto a la Persona el aspecto simétrico. Los principios deben fortalecerse mutuamente. Es decir, el médico puede hacer el bien inspirado en la tradición paternalista o más bien en las virtudes que la sostenían, pero regulado por una consideración respetuosa de la persona. Así se genera una atmósfera de confianza **recíproca** - en contraste a la unidireccional del paternalismo y al menosprecio de la confianza en el modelo legalista.

Podemos argumentar a favor de una intervención médica benévola justificándola al observar al menos tres condiciones o requisitos en el paciente que reflejan cierto respeto a la persona.

a) establecer su competencia en el orden del entender - comprender hechos, libertad ante la cohesión, manipulación y engaño - auscultar si existen defectos, limitaciones o barreras al ejercicio del consentimiento ilustrado y responsable.
b) un grado substancial de daño como resultado del no intervenir (principio de la no maleficencia; deber perfecto).
c) proporcionalidad- los beneficios probables de la intervención deben superar el daño probable de no intervenir. Es preciso establecer la calidad del beneficio y del daño - cuestión dificil en una sociedad pluralista[9] .

En todo caso debe usarse el procedimiento menos restrictivo de la persona, menos humillante, y menos insultante. El respeto a persona obliga al médico a observar el cuidado integral y único de la persona, y no limitarse a equiparar el bien con eficacia clínica. La coordinación práctica del Principio de Beneficencia - de modo parcial asociado al Paternalismo - y el Principio de Respeto a Persona - implícito en la corriente de pro-derechos y autonomía exige una reconsideración de temas éticos fundamentales. En esta presentación corta solo puedo enumerar algunos.

a) Retorno a una ética de la virtud y del cultivo del carácter moral por vía de la auto -disciplina como contribución a generar confianza entre médico y paciente. Las virtudes de integridad, honestidad, respeto y compasión son cardinales para el médico[10]. Se espera que el médico además de ser competente y benévolo, respete los

[7] *Lugo, Elena.* ***Etica Médica****, pág. 36-38.*
[8] *Pellegrino E., Thomasma D.* ***For The Patients Good*** *-New York: Oxford University Press, 1988, pág. 35.*
[9] *Childress, J. Op. At., 102-103.*

derechos y la dignidad inherente a la persona del paciente. El paciente debe aceptar su dependencia ante el criterio clínico, ofrecer información correcta, y participar coresponsablemente en la terapia, prevención de enfermedad y promoción de la salud. Ambos deben meditar sobre la condición humana, moderar las exigencias de usar y consumir los recursos escasos en el cuidado de la salud, y aceptar con valentía el morir. Esto se dificulta cuando el encuentro médico-paciente acentúa la extrañeza mutua por via de un mero contrato de carácter legal y por el cuidado de paciente fragmentada y rápida.

b) Fomentar el sentido de una ética comunitaria inspirada en la categoría psico-socio-moral del **cuidado.** Bajo este concepto se incorpora una modalidad del razonar ético que incluye la aplicación de principios filosóficos - beneficencia, autonomía, justicia como básicos - que prestan coherencia en la explicación de la experiencia moral, pero también la percepción receptiva y empática ante la experiencia concreta de la vulnerabilidad y multiplicidad de relaciones propias a la condición humana. Ni principalismo - sea el Principio de Beneficencia o de Respeto a Persona - ni casuística intuitiva representa nuestra propuesta, sino más bien una dialéctica entre razón y experiencia. Se trata de un renovado esfuerzo intelectual de captar el sentido normativo que emana de las exigencias de la experiencia humana, de formular la teoría que articula la práctica en cuanto al qué y el cómo, o el valor cognoscitivo en el orden afectivo. Como categoría central a la ética del cuidado reconocemos el concepto de persona - tal como ya elucidado en el contexto de esta presentación - como sujeto al igual que objeto de responsabilidad individual y comunitaria. Igualmente se ha de considerar el fenómeno del sufrimiento, la dependencia, la servicialidad ante la vulnerabilidad de la condición humana.

c) Insistir en el debate y diálogo público sobre el **bien común** el cual de modo alguno puede confundirse con la política de una mayoría o el interés del grupo de mayor fuerza pública. Este diálogo se hace más urgente precisamente porque al no compartir valores e ideales sobre el bien se carece de base para identificar una autoridad de experto o claridad sobre la finalidad propia de la práctica médica en sí.

Creo necesario profundizar en la búsqueda de criterio o contenido substancial que oriente y certifique el carácter **ético - bondad** - de las decisiones. Los derechos y los deberes en reciprocidad necesitan ser justificados en términos de la calidad de vida, inclusive de como vivir con sentido ante la mortalidad sin insistir, eliminar o controlar la muerte (medicina-tradicional) y eliminar el sufrimiento (paciente contemporáneo). Necesitamos una ética de la cultura que discuta la dirección y unidad de la sobrevivencia humana en armonía con los recursos escasos pero admitiendo distribución justa. La ética médica no solo es interdisciplinaria sino transdisciplinaria pues sus debates incluyen la redefinición de nuestras instituciones culturales, i.e. educación, salud, gobierno, religión. En el contexto de una ética cultural se articula el sentido del bien y el contexto de las decisiones libres, como también un criterio específico para la justicia.

Conclusión

La metáfora actual que se sugiere a modo de conclusión: ni paternalismo ni autonomismo sino **comunidad de intersubjetividad responsable,** o ser persona en-con para la otra persona. Los retos actuales, al menos en Puerto Rico, que exigen una renovación del pensar ético según propuesto de **parte de médicos y pacientes** en corresponsabilidad provienen de fuerzas externas en el contexto institucional y social, a saber:

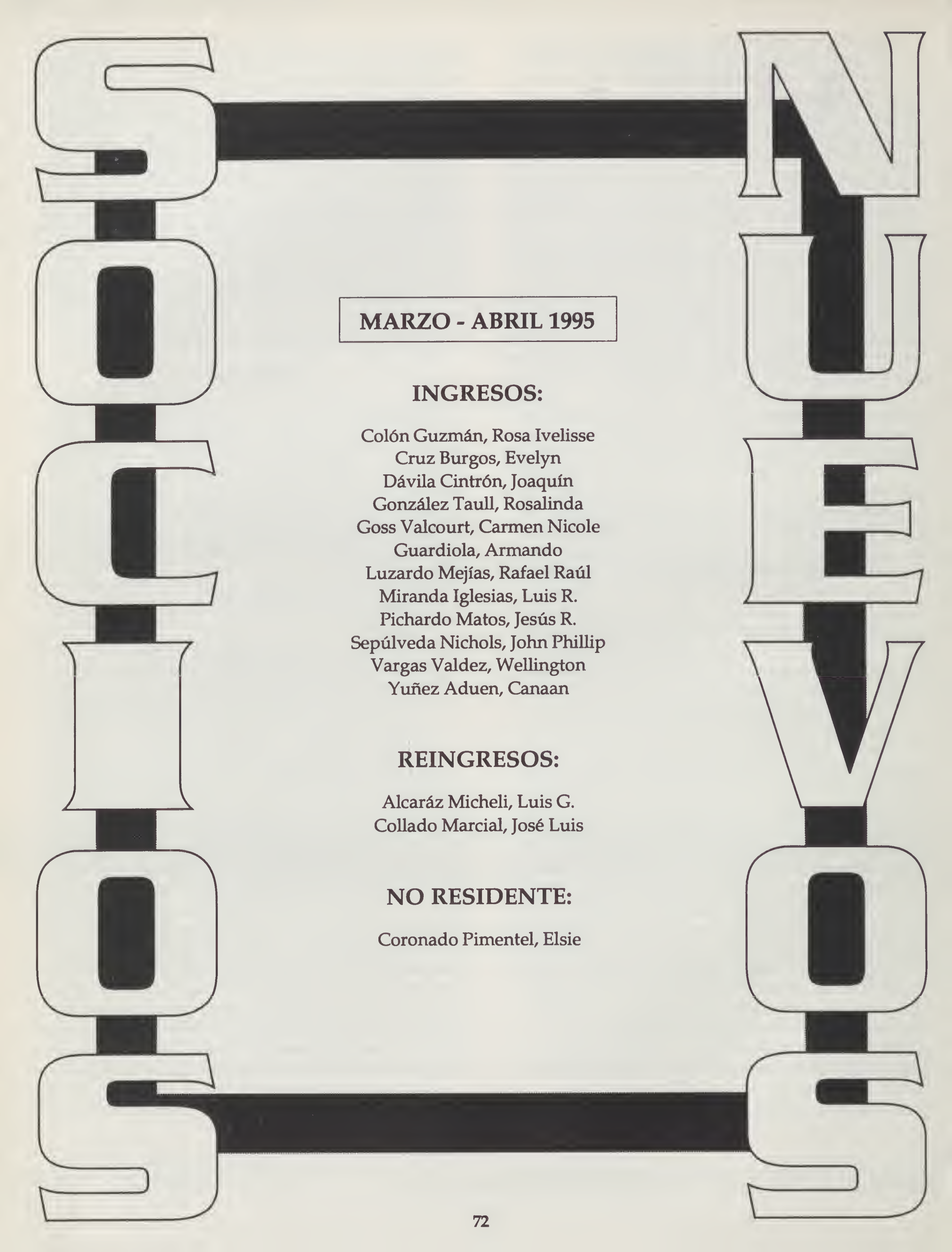
a) control del costo económico.
b) control de la acreditación, riesgos y problemas legales.
c) inherencia de compañías de seguros.
d) interdependencia de varias profesiones de la salud en competencia.
e) control de calidad por medio de unidades institucionales (illust. "uitlization reviews", "peer-review", "quality control"[11])

Estos recursos sociales no siempre se orientan por el principio de beneficencia o para fomentar la autonomía del paciente. Tampoco fomentan la responsabilidad y virtuosidad del profesional de la salud. Cabe la posibilidad de transformar decisiones médicas en decisiones empresariales. El paciente sería un consumidor de servicios vistos estos como mercancía - y el médico como funcionario social y árbitro en la distribución de recursos y guardián de la salud pública respondiente a valores ¿externos? ¿contrarios? al bienestar médico del paciente. Es preciso retornar a la interacción personal del acto clínico como encuentro recíproco de virtud sobre la base de la vulnerabilidad humana y la nobleza de la servicialidad humana, pero también es urgente hacer una crítica del sentido ético de las instituciones culturales que le sirven de contexto.

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[10]*American College of Physicians - A C Ph. Ethics Manual (Third Edition) 1992.*

[11]*Macklen, Ruth.* ***Enemies of the Patients.*** *New York: Oxford University Press, 1993, pag. 230-245.*



MARZO - ABRIL 1995

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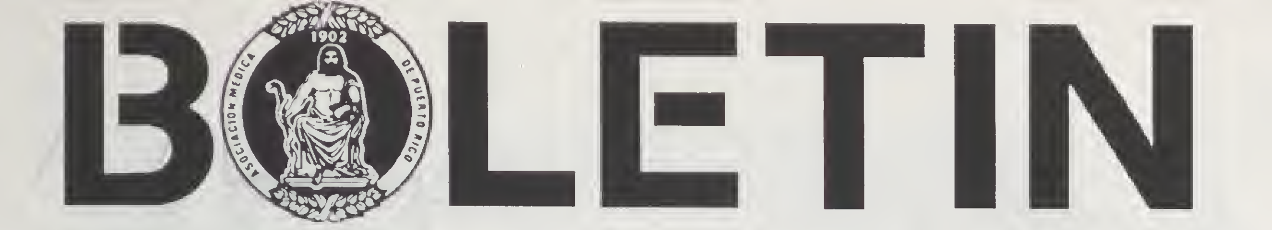
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Se urge a los autores se esfuercen en perseguir claridad, brevedad, e ir a lo pertinente en sus manuscritos, no importa el tema o formato del manuscrito.

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El manuscrito completo, incluyendo las leyendas y referencias deberán estar escritos en maquinilla a doble espacio; por un sólo lado de cada página, en TRIPLICADO y con amplio margen. En página separada deberá incluirse lo siguiente: título, nombre de autor(es) y su grado (ej.: MD, FACP), ciudad donde se hizo el trabajo, el hospital o institución académica, patrocinadores del estudio, y si un artículo ha sido leído en alguna reunión o congreso, así debe hacerse constar como una nota al calce.

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Artículos referentes a resultados de estudios clínicos o investigaciones de laboratorio deben organizarse bajo los siguientes encabezamientos: Introducción, Materiales y Métodos, Resultados, Discusión, Resumen (en español e inglés), Reconocimiento y Referencias.

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Las tablas deben aparecer en hojas separadas. Estas deben incluir el título, y el número de la tabla debe estar en romano. Los símbolos de unidades deben limitarse al encabezamiento de las columnas. Se deben omitir líneas verticales en la tabla. Se usará en las tablas el mismo idioma en el cual está escrito el artículo. Deben limitarse las tablas a sólo aquellas que contribuyan al mejor entendimiento del manuscrito.

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All authors are urged to seek clarity, brevity, and pertinence in the manuscripts regardless of subject or format.

In order to facilitate review of the article by the Editorial Board and the work of the printer, the authors must conform with the following instructions:

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Nomenclature

Generic names of drugs should be used; trade names may also be given in parenthesis, if desired. metric units of measurement should be used preferentially.

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These should be typed on separate sheets with the title and table number (Roman) centered. Symbol for units should be confined to the column headings. Vertical lines should be omitted. The language used in the tables must be the same as that of the article. Include only those tables which will enhance the understanding of the article. They should supplement, not duplicate the text.

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Photographs aand photomicrographs shoul be submitted as glossy prints, (unmounted) or slides. They should be labeled in the back with the name of the aaauthors and figure number (Arabic) and the top should be indicated. legend to the figures should be typed on a separate sheet.

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An aostract not longer than 150 words should accompany all articles. it must include the main points that present the core of the article and the exposition of the problem, method, results, and conclusions.

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If there are more than 7 authors list only 3 and add et al.

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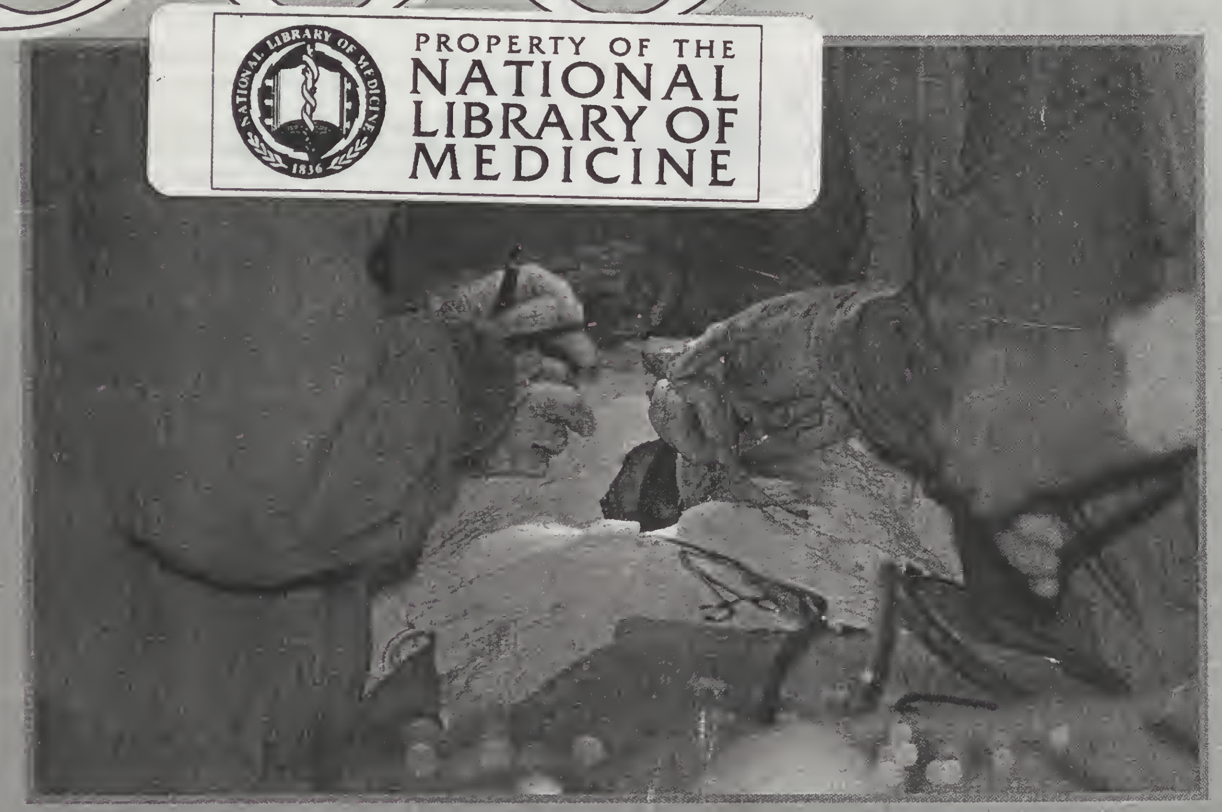


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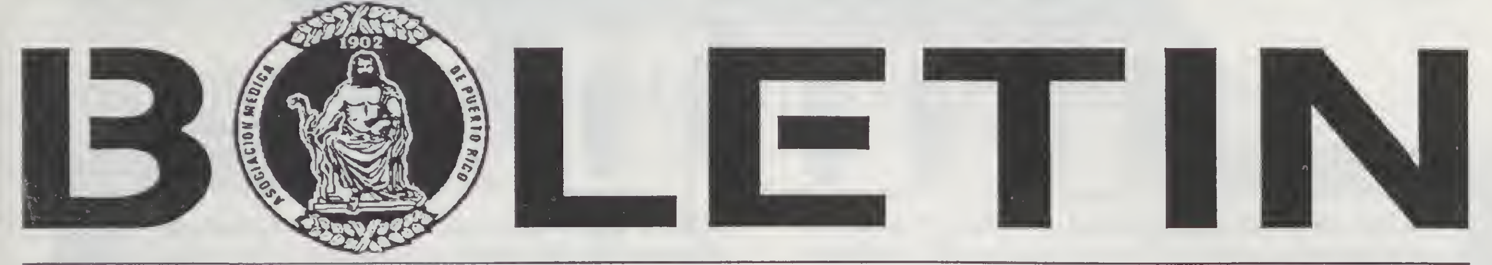
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500 Trasplantes Renales



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Contenido


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ASOCIACION MEDICA DE PUERTO RICO

Editorial:

Los 500 Trasplantes Renales en Puerto Rico

Eduardo A. Santiago Delpín, M.D.

Este volumen del Boletín de la Asociación Médica de Puerto Rico celebra algo más que un número de una operación específica; después de todo, 500 operaciones se realizan en un mes en la mayor parte de los hospitales grandes del país. Lo que ocurre es que trasplante es más que una operación. Para empezar, trasplante sigue siendo un milagro inmunológico a pesar de todos los conocimientos que tenemos de inmunología. De hecho, es precisamente el conocimiento inmunológico actual el que nos reafirma lo difícil que es el éxito en un trasplante, por la complicadísima red de señales, tipos de células, contacto celular, eventos nucleares, citoquinas, linfoquinas, circuitos positivos y negativos, en fin que es una irrupción en la homeostasis casi Taoista que existe normalmente, y cuyo propósito es impedir que se adentre algo extraño en nuestro organismo. Y el injerto es extraño, y todo lo extraño lo lee el sistema como malo.

En segundo lugar, es uno de los actos altruistas más dramáticos que tenemos hoy. En un mundo convulso por violencia externa e interna, sobrepoblado, hostil al ambiente, materialista, que oculta al anciano y al enfermo, y que se oculta tras la apatía y el materialismo, surge este inesperado y valiente ejemplar que se llama El Donante a hablarnos de sentido de misión y del amor - á la-Eric Fromm - como solución existencial. Este acto puede tener dentro de sí una solución a muchos de los problemas que tenemos.

Extraordinario también ha sido el arrojo y confianza con que los pacientes de enfermedad renal terminal han permitido esta intervención, aun a sabiendas de que la terapia no es perfecta. Hoy quizá ya no es tan difícil cuando los resultados de sobrevida de paciente rebasan el 90% y los de riñón a largo plazo el 70%. Pero al principio, cuando los resultados no eran tan buenos, se requería mucha fe del sistema. Claro está, cuando comienzan los trasplantes a popularisarse en la década de los sesenta y aun hasta el día de hoy estuvo siempre presente un imperativo ético que era "el mayor bien posible". Sobre todo en trasplante cardíaco, hepático y pulmonar la otra alternativa era la muerte.

Trasplante es también explosión de conocimiento. Fue la presión clínica el motor más grande detrás de la actividad continua y universal de investigación en inmunología. De ser el linfocito un párrafo en un libro de texto de medicina en el 1964, hoy se escriben volúmenes y volúmenes de tan solo una molécula. Los que comenzamos hace 30 años presenciamos el inicio de esta actividad global y celebramos con reverencia y sensación de maravilla cada molécula, cada célula, cada transacción, cada asa cibernética.

En lo religioso y en lo legal también ha dejado su huella el trasplante. La mayor parte de las religiones resolvió diferencias y con voz casi unánime se expresó a favor de los trasplantes. Quizá Juan Pablo II haya sido el mejor portavoz del sentido Cristiano al escribir que era ésta "la acción más cerca del sacrificio de Cristo que hombre alguno podría hacer". Igualmente en el plano legal, obligó a juristas y teóricos a enfocar el problema del momento de la muerte, las medidas extraordinarias de apoyo, la pertenencia del cuerpo, y la definición y los procesos de donación.

Desde el punto de vista de servicio quizá sea el mejor ejemplo de labor en equipo. Es imposible e impermisible llevar a cabo trasplante de riñón o de cualquier órgano sin especialistas en cirugía y en medicina de las ramas concernidas, equipos complejos de recuperación y preservación de órganos, laboratorios sofisticados de inmunología incluyendo histocompatibilidad, trabajadores sociales, nutricionistas, sicólogos, psiquiatras, especialistas en rehabilitación, administradores, unidades de cuidado crítico, sistemas "expreso" dentro de la salubridad social y del hospital de trasplante, especialistas y técnicos de prácticamente todas las disciplinas de la medicina moderna.

Finalmente, el trasplante es una empresa de todo un país: requiere el apoyo y el envolvimiento de todos. Esto, a nivel económico, legal, facilitación de recursos, organizacional, académico, y clínico. Así lo demuestra la experiencia de todos los países que conocemos donde la expansión y desarrollo de los trasplantes de órganos ha tenido que esperar la coordinación y apoyo de otras áreas del país, incluyendo el gobierno.

Escribo a nombre de los miembros del Programa de Trasplante de Puerto Rico, los de Ponce, los de Veteranos, los del Auxilio, los de la Escuela. Conscientes de las dificultades y peculiaridades inherentes a la cirugía, sociología e inmunología envuelta nos unimos en agradecimiento a todos: los directores y administradores de las instituciones que nos han albergado, al Gobierno de Puerto Rico y en especial a las Comisiones de Salud de la Cámara y del Senado, al gobierno pasado y al presente, y a los varios secretarios de salud, a las organizaciones de profesionales y de pacientes, al personal, compañeros de trabajo de las instituciones de trasplante y de las instituciones que manejan a nuestros pacientes, a los nefrólogos y otros especialistas que comparten la tarea con los cirujanos, a los pacientes por su confianza y a los donantes por su regalo, y al personal administrativo, secretarial y técnico.

Es por todas estas razones que necesitamos celebrar los 500 trasplantes de Puerto Rico.

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EDNA NETTLESHIP, MT (ASCP), MS

1921 - 1994

Por: Eduardo A. Santiago Delpín, M.D.

El mismo día que realizamos el transplante número 500 en el Programa de Transplante de Puerto Rico murió Dona Edna. "Su corazón estaba muy débil y poco a poco dejó de latir", me escribió su hija. Edna sabía que estábamos llegando ya al medio millar pero no pudo compartir con nosotros el aniversario. Es justo pues, que dediquemos este volumen a nuestra compañera pionera y colaboradora que tanto le dio a su país de adopción.



Doña Edna siempre fue joven y siempre fue estudiante. Nació en Brooklyn, Nueva York en mayo 26 de 1921 e hizo sus primeros estudios en el Rosemont College en Pennsylvania de 1938 al 1941, recibiéndose en química. Luego trabajó en el Elizabeth General Hospital en Elizabeth, New Jersey donde tuvo entrenamiento especial con el Dr. Arturo Casilli, patólogo y donde adquirió mucha experiencia sobre banco de sangre, bacteriología y serología la cual eventualmente sería su vocación principal. Coincidiendo con un trabajo de facultad como Instructora en Química Inorgánica en la Universidad de Fordhan en Nueva York obtuvo 24 créditos conducentes a un grado de Maestría en Bioquímica, grado que no pudo completar hasta diez anos después en nuestro país. Luego trabajó en el San Barnabas Hospital en Nueva York en el laboratorio general, y más tarde en el Saint Francis Hospital en Buffalo, Nueva York en el banco de sangre como laboratorista.

Su carrera en Puerto Rico comienza en julio de 1950 cuando viene a trabajar como tecnóloga jefe en el Hospital Dr. Pila de Ponce, recién casada con el Sr. Oscar Jiménez. Continúan aquí en evidencia sus intereses académicos con un nombramiento como Instructora en Química Inorgánica en la Universidad Católica. En el 1952 se muda a San Juan y trabaja en el Hospital Pavía en Santurce como jefa del laboratorio: desde el momento que salió de su bachillerato, siempre fue jefa de algo. Mas luego en octubre de 1960 y después de una rotación por hematología y tuberculosis se queda en el Hospital Ruiz Soler primero como Microbióloga y luego como Administradora del Laboratorio Clínico hasta el 1974.

Ahí decide reanudar sus estudios de maestría en la Universidad de Puerto Rico y se traslada como tecnóloga médica de noche al laboratorio general del Hospital de Veteranos, así finalizando una maestría en la cual yo participé en su comité de tesis que dirigió Dr. Julio Colón. Su tesis titulada "Tumor Regression by a Fraction of a Culture of M-bovis induced with S-180 Mouse Sarcoma Cells" la defendió exitosamente ante el comité y luego ante el Departamento de Microbiología. Es aquí que define su interés en histocompatibilidad, busca entrenamiento en la Universidad de Minnesota y funda el primer Laboratorio de Histocompatibilidad en el Hospital de Veteranos, y

luego desarrolla y dirige el Laboratorio de Histocompatibilidad de Puerto Rico en el Departamento de Patología de la Escuela de Medicina donde también recibe el rango de Investigadora, una de las primeras personas que recibió esta designación académica en nuestro Recinto. Recibió entrenamiento en tuberculosis en el Center for Disease Control en Atlanta, Georgia, e Histocompatibilidad en la Universidad de Minnesota, en Duke University en North Carolina, y en John Hopkins University Hospital .

Paralelo con sus posiciones profesionales logró licencia y membresía en el American Society of Clinical Pathology, Colegio de Tecnólogos Médicos de Puerto Rico, American Society for Microbiology, Sociedad de Microbiólogos de Puerto Rico, American Association of Clinical Histocompatibility Testing, South Eastern Organ Procurement Foundation, y New York Academy of Sciences, y ayudó a fundar la Sociedad Puertorriqueña de Alergia e Inmunología.

Llevó a cabo investigación sobre tuberculosis, tumores, y eventualmente sobre histocompatibilidad. Además, fue miembro de comités de tesis de por lo menos dos estudiantes graduadas; fue conferenciante regular localmente sobre histocompatibilidad e inmunología principalmente; presentó conferencias y abstractos en reuniones profesionales locales y en los Estados Unidos; y publicó trabajos en el Federation Proceedings, Boletín de la Asociación Médica de Puerto Rico, revistas de microbiología, y en Lancet.

Edna organizó y desarrolló el primer Laboratorio de Histocompatibilidad en Puerto Rico sirviendo inicialmente solo a los pacientes de transplante renal. Al principio solo llevábamos a cabo tipificación de tejido, pero eventualmente ella introdujo la tecnología de cultivo mixto de linfocitos, inmunodiagnóstico con anticuerpos monoclonales, y otros procedimientos como reactividad de PHA y niveles de células T y B. Al transferir el laboratorio a la Escuela de Medicina de la Universidad de Puerto Rico, fue Edna quien desarrolló muchos de los detalles organizacionales y administrativos para hacer de esta una operación exitosa. Ya en la Escuela, el laboratorio sería para todo Puerto Rico y pudo expandir además de las pruebas básicas, los marcadores de enfermedad, técnicas de investigación, y estudios de filiación. Aún cuando yo era el "Director" del laboratorio (fui director del laboratorio por muchos años), fue su experiencia, conocimiento y educación continua las que guiaron al Laboratorio exitosamente a través de todas las visitas de acreditación locales y de los Estados Unidos por organizaciones regionales y nacionales. Su posición y sus relaciones excelentes con los grupos acreditadores locales y nacionales permitieron facilitar mucho aspectos difíciles de la operación administrativa de la unidad. Sus buenas relaciones locales permitieron el desarrollo adecuado de facilidades físicas y guías administrativas en ambas instituciones albergaron .

En el área de investigación, asistió y escrutinizó críticamente las hipótesis detrás de varias publicaciones que salieron del laboratorio. Estuvo envuelta en algunos estudios importantes tales como: estudios antropológicos sobre nuestros orígenes, estudios de esprú tropical, estudios sobre inmunología de pacientes en diálisis, pruebas predictivas para transplante renal, estudios inmunológicos en animales, etc. Sirvió como colaboradora en estudios con el Dr. Antonio Barquet Chediak, el Dr. Menéndez Corrada, Dr. Edwin Mejías, Dr. Francisco Aguiló, Dr. Julio Colón, el Dr. Angel Rodríguez Trinidad, conmigo y con la Sra. Sally de Echegaray, quien la sucedió en la posición académica y administrativa.

Pero Edna fue más que una académica exitosa. Edna ayudó a crear un ambiente receptivo para la discusión académica, el análisis crítico y el desarrollo de estudiantes graduados. Siempre estuvo disponible para albergar estudiantes jóvenes y estudiantes viejos en el Laboratorio y buscó las maneras de sufragar proyectos pilotos y a otros laboratorios. El Laboratorio actual y el Programa completo comparten esta filosofía hasta el día de hoy.

Y en todo momento su entusiasmo, dinamismo, juventud, jovialidad, y ecuanimidad permitieron que sin comprometer la calidad existiera armonía y unidad de dirección lo que nos permitió trabajar y disfrutar más que como equipo, como familia. Estoy seguro que estos rasgos fueron reflejo de una filosofía personal aún mayor, la de figura materna, ya que incluso con todos los compromisos académicos y sus estudios y su envolvimiento y su enfermedad, siempre estuvo con sus hijos. Billy, Diana y Charlie Jiménez Nettleship fueron su luz y su amor central y los vio desarrollarse a todos en excelentes adultos, celebrando con ellos cada uno de sus logros y compartiendo con ellos todos sus problemas y así igual hizo con sus nietos; una figura siempre presente. Esta luz y filosofía personal se reflejó en todas sus relaciones incluyendo las profesionales que estoy describiendo hoy.

Cierro recordando de mi carta a ella el 15 de mayo de 1990 con motivo de su retiro. "Testimonio con ésta una amistad imperecedera y al gran cariño y admiración que siento por ti. Testimonio además una deuda que tengo personalmente contigo por creer y confiar en mi idea inicial y por desarrollar este componente tan importante de los trasplantes en Puerto Rico sin el cual no hubiera sido posible el desarrollo de más nada en el país. Testimonio también lo que nos diste personalmente a todos los del grupo inicial y a todos los demás que estuvieron contigo incluyendo tus compañeros e incontables estudiantes graduados a quienes ayudaste a formar. Testimonio finalmente la deuda del país, de los pacientes pasados y futuros, y de todas las personas que se beneficien de lo que tú comenzaste. Quiero desearte finalmente que conserves el mismo hermoso recuerdo que tenemos nosotros de esta experiencia que pasamos juntos". Edna, espero que haya sido así contigo hasta tu día final en la tierra; así lo es con nosotros.

Artículos Originales:

Los Primeros 500 Trasplantes Renales en Puerto Rico

Por: Eduardo A. Santiago Delpín, Zulma A. González Caraballo, Luis A. Morales Otero, Nivia Cruz, Juan O. Pérez, Mary Molina, Ernesto Rivé Mora, José H. Amadeo, Andrés Acosta Otero, Osvaldo Ramírez Muxo, Rafael Ramírez González, José Pascual-Barat, Laura Lespier

Veintiséis años después que se realizaron los primeros trasplantes en Ponce y 18 años después que comenzó el Programa de Trasplante de Puerto Rico, rebasamos la cifra de 500 trasplantes renales en nuestro país. Este volumen del Boletín de la Asociación Médica de Puerto Rico recoge diferentes aspectos de esta importante actividad, con énfasis en lo clínico, lo educativo y la investigación, y el impacto de nuestro Programa en el escenario Latino Americano y de otros países en desarrollo.

DESARROLLO DE LOS PROGRAMAS

Es menester comenzar cualquier narrativo sobre los trasplantes en nuestro país identificando la experiencia pionera del Programa de Trasplante de Ponce el cual en el 1968 y coincidiendo con el comienzo de los trasplantes en América Latina, realizaron los primeros trasplantes en Puerto Rico. Entre 1968 y 1974 el Programa de Trasplante de Ponce en el Hospital Regional llevo a cabo 17 trasplantes renales, 15 de ellos de donante cadavérico. Los cirujanos y facultad aparecen en la Tabla 1. Esta experiencia complementó otras iniciativas de servicio renal en Puerto Rico tales como los incipientes programas de hemodiálisis, diálisis peritoneal, diálisis del hogar, y los programas de entrenamiento renal.

Tabla 1.
Experiencia pionera de trasplante en Ponce: 1968-1974
Facultad Médica de los primeros trasplantes

Dr. Víctor Carlo
Dr. Jorge Gutiérrez
Dr. Sergio López Lotti
Dr. Héctor Rodríguez Estapé
Dr. Ernesto Rodríguez

Luego hubo un receso de algunos años en lo que se preparaba un equipo de trasplante de la Universidad de Puerto Rico en el Hospital de Veteranos y en este hospital se llevaron a cabo 2 trasplantes entre 1973 y 1974, pero todavía antes del desarrollo de un Programa formal. El Programa de Trasplante de Puerto Rico se inaugura formalmente el 11 de enero de 1977 cuando se practicó el primer trasplante de riñón en un maestro de Mayagüez, el Sr. Israel Sánchez.

Contamos inicialmente con un cirujano de trasplante, un cirujano de donante, dos nefrólogos, una técnica de histocompatibilidad (Sra. Edna Nettleship, quien recientemente falleció y a quien dedicamos este número) y un coordinador-perfusionista. Teníamos un Laboratorio de Perfusión y un Laboratorio de Histocompatibilidad e Inmunología.

En 1980 comenzaron una serie de reuniones entre las autoridades del Hospital de Veteranos, el Secretario de Salud, el Rector del Recinto de Ciencias Médicas y el Director del Centro Médico y del Hospital Universitario, para transferir el Programa a otra institución ya que su crecimiento y proyecciones así lo requerían, tomando en consideración que éste era un Programa académico y que era para todo Puerto Rico. La decisión fue transferirlo al Hospital Auxilio Mutuo y previo acuerdo con los directores, y mediante una planificación cuidadosa, el 21 de septiembre de 1983 se llevo a cabo el primer trasplante del nuevo Programa, el número 136 del total, en un mecánico de Bayamón, el Sr. Carlos Colón, y el 28 de septiembre de 1994 el Sr. Joel Pérez, estudiante recibió el 500.

El Apéndice 1 enumera la facultad que a través de los años ha trabajado en el Programa, incluyendo la facultad actual, y a quienes se debe en parte la viabilidad y éxito del Programa. En adición a la facultad directa, todo programa de trasplante requiere una infraestructura de servicios de hospital terciario con cubierta de 24 horas al día (Tabla 2), y cubierta continua de especialistas y sub-especialistas consultores (Tabla 3). Así es el caso en Puerto Rico y en ambos hospitales el Programa ha contado con servicios y consultores excelentes.

Programa de Trasplante de Puerto Rico, Hospital Auxilio Mutuo (1983-94) y Hospital de Veteranos (1977-85); y Departamentos de Cirugía, Patología, Pediatría y Medicina, Escuela de Medicina, Universidad de Puerto Rico.

Tabla 2.
Servicios Hospital con Cubierta 24 horas

Arteriografía	Sala de Emergencia
Medicina Nuclear	Endoscopía
Banco de sangre	Sala de Operaciones
Patología	Inmunología
Coronaria	Sonografía
Radiología General	Intensivo
Citología	Terapia Respiratoria
Resonancia Magnética	Tomografía Computarizada
Diálisis	Anestesia

Tabla 3.
Consultores Médicos

Cardiología	Ortopedia
Neurología	Ginecología
Cirugía Oral	Pneumología
Oftalmología	Infectología
Dermatología	Siquiatría
Otorrinolaringología	Neurocirugía
Gastroenterología	Anestesiología

TRASPLANTES CLINICOS Y DONACION

El Programa de Puerto Rico[1] al igual que la inmensa mayoría de los programas de trasplante en América Latina[2] utiliza predominantemente órganos provenientes de donantes vivos ya que la donación cadavérica es exigua. Hemos estudiado en detalle los factores envueltos en este problema y se pueden reducir a tres. En primer lugar, en el momento de la muerte el proceso de sufrimiento se expresa de una manera peculiar en los habitantes de los países hispanoamericanos. Durante esta expresión abierta de dolor que a veces raya en la histeria y en la cual se pueden hasta hacer daño físico los propios familiares, se hace muy difícil el abordar a la familia para una donación[3]. Simplemente no existe la comunicación. En segundo lugar, la toma de decisiones en nuestros países y en particular en Puerto Rico es muy difusa y se lleva a cabo por muchos miembros de la familia, e incluso las decisiones finales pueden tomarse por un patriarca o matriarca de la familia, o por un padrino, o por la persona más exitosa del grupo familiar, y no necesariamente por el próximo en sucesión[3]. En tercer lugar, y tal como nos lo demuestra la extraordinaria experiencia de España, el rol del Coordinador y del desarrollo de los hospitales ("hospital development") es pivotal en crear consciencia en las instituciones sobre la donación y el obtener mayor numero de órganos. España es uno de los líderes del mundo en la donación de órganos y los cursos de entrenamiento para coordinadores están siendo emulados en nuestros países latinoamericanos al igual que en otros países[4].

La Tabla 4 ilustra nuestra actividad por año desde el 1977 hasta el 1994. Resaltan la cifras limitadas de donación cadavérica a través de casi todos los años. Luego de un período de ninguna actividad, en 1983 se aprueba la Ley sobre Muerte Cerebral que enmienda La Ley de Donaciones de 1974 y la que facilito el uso de órganos de cadáver. La Tabla 5 desglosa la actividad cadavérica reciente, y las razones por no utilizar algunos donantes potenciales. La ley en Puerto Rico se discute mas adelante en un artículo por Morales. También comenzamos el uso cauteloso del donante vivo relacionado por afinidad, y este tema se discute en detalle por Domínguez y Zayas más adelante. La religión no solo no se opone sino que fomenta y ve como un acto cristiano la donación para trasplante[5], y Padre Ferrer discute el tema en otro artículo de este volumen.

INMUNOSUPRESION

Al principio, nuestro esquema se basaba en prednisona, azatioprina y Globulina Antilinfoblástica de Minnesota (MALG). En el 1980 instituimos un protocolo de prednisona en dosis baja, añadiendo un segundo curso de MALG para el manejo del rechazo. Con este cambio mejoraron los resultados marcadamente[1]. En 1984 comenzamos a usar ciclosporina en combinación con prednisona, pero prontamente se nos hizo claro que había toxicidad considerable. De ahí que disminuyéramos la dosis y comenzáramos un protocolo de terapia triple, incluyendo azatioprina en dosis más bajas. El péndulo colectivo internacional cambió nuevamente hace tres años cuando se hizo evidente que las dosis de ciclosporina eran ahora muy bajas y se comenzó con un protocolo más científico con dosis más altas de mantenimiento (sobre 4mg/kg/d) y prestando más atención a los niveles en sangre.

Por otro lado, los anticuerpos biológicos siempre han sido importantes en el manejo del rechazo, primero la globulina antilinfoblástica de Minnesota, luego el antisuero monoclonal antireceptor CD3 y más recientemente la globulina policlonal antitimocítica, tanto profilácticamente como en el rechazo. En meses recientes comenzamos el uso cauteloso del FK506 en pacientes con rechazo resistentes a la terapia antirechazo convencional, logrando rescatar agudamente a 3 de 5 casos con rechazo "irreversible".

En otro artículo de este volumen, Castillo discute en detalle el tema de la inmunosupresión.

RESULTADOS DE SOBREVIDA

En trasplante de riñón se habla de la sobrevida del paciente y la del injerto. A diferencia de trasplante cardíaco, hepático y pulmonar, en el caso renal la diálisis permite al paciente vivir sin el injerto. Nuestros

Tabla 4.
Programa de Trasplante de Puerto Rico

	Donantes Cadavéricos		Donantes Vivos Relacionados		Donantes Vivos No Relacionados	
	Locales	USA	1er Grado	2ndo Grado	Esposo/a	Otros
1977	3	0	21	—	—	—
1978	3	2	10	—	—	—
1979	0	3	6	1	—	—
1980	0	2	16	—	—	—
1981	0	1	15	—	—	—
1982	0	1	11	2	—	—
1983	0	0	21	—	—	—
1984	6	6	14	1	—	—
1985	6	15	23	—	—	—
1986	5	16	20	2	—	—
1987	13	7	9	2	—	—
1988	14	4	12	—	—	—
1989	11	0	23	—	—	—
1990	6	7	17	1	4	—
1991	3	6	17	3	4	3
1992	3	6	23	—	5	1
1993	11	2	15	4	1	3
1994	7	6	18	1	—	0
TOTAL	80	95	293	17	14	7
						505*

**Más 4 Auto-trasplantes (509 Total real)*

Tabla 5.
Obtención Local de Organos en Puerto Rico

	Número de llamadas	Sin muerte cerebral	Excluido razón médica	No donó familia	Donaron pero no se obtuvieron	Extraídos
1985	5	—	—	1	—	3
1986	17	—	2	1	—	3
1987	20	1	6	6	1	7
1988	32	2	11	7	5	7
1989	40	2	18	10	3	7
1990	36	3	13	10	6	4
1991	29	2	12	5	6	4
1992	18	3	3	6	4	2
1993	39	6	14	4	7	8
1994	35	8	4	10	8	5

resultados, al igual que los de la mayor parte de los centros de Estados Unidos y de Europa, han mejorado a través del tiempo. Los factores principales han sido tres. Primero, mayor conocimiento de la inmunobiología del rechazo lo cual nos ha permitido afinar las intervenciones clínicas e inmunológicas. Segundo, mayor consciencia del balance precario de la persona inmunosuprimida, el cual obliga al medico (y a todo el sistema de salud) a una agresividad extrema en diagnóstico y tratamiento sobre todo en las infecciones y en el rechazo, con mucha agudeza (casi malicia) diagnóstica ya que las decisiones en trasplante renal son cosa de horas. Y tercero, mejor inmunosupresión.

Los resultados históricos y actuales se pueden ver en la Tabla 6 con los diferentes tipos de inmunosupresión[6]. Los resultados mejoraron con la globulina antilinfocítica como agente inmunosupresor profiláctico y para el manejo del rechazo.

Nuestros resultados de los últimos años mejoraron un poco mas con el uso de la Ciclosporina. Estos son análogos a los del promedio de los programas de trasplante en Estados Unidos y en Europa[7]. De particular

Tabla 6.
Resultados Históricos y Actuales con Diferentes Tipos de Inmunosupresión[1]

Sobrevida	1 año	3 años	5 años	7 años
Período I: 1977-80[2]				
Paciente	89%	87%	85%	80%
Injerto	80%	73%	69%	58%
Período II: 1980-84[3]				
Paciente	98%	96%	95%	95%
Injerto	87%	78%	73%	73%
Período III: 1985-94[4]				
Paciente	96%	93%	92%	90%
Injerto	93%	85%	79%	65%

(1) Sobrevida actuarial trasplante donador vivo solamente
(2) Profilaxis con Prednisona, Azatioprina y Suero anti-linfoblástico (ALG), Esteroides para rechazo.
(3) Profilaxis con dosis bajas de Prednisona, Azatioprina y ALG. ALG para rechazo.
(4) Ciclosporina y Prednisona, con o sin Azatioprina. ALG/OKT3 para rechazo.

importancia es que los pacientes diabéticos tienen mejor sobrevida a 1 año que los no-diabéticos[8], aunque a largo plazo comienzan a manifestarse las complicaciones vasculares y cardíacas de esta enfermedad y ahí las curvas se emparejan. Así mismo, en un estudio actual los pacientes con serología positiva para hepatitis C tienen mayores complicaciones hepáticas, inmunológicas y renales (datos sin publicar). El alcoholismo es tambien un factor de riesgo como lo es la hepatitis B, el fumar y las condiciones cardíacas y vasculares cerebrales preexistentes. La mortalidad total de paciente es mayor en recipiente de cadáver que de vivo (P = 0.002).

En estudios anteriores hemos encontrado que los niños tienen una mayor incidencia de rechazo mientras que las personas de edad mas avanzada tienen una mortalidad mayor[9]. Conviene recordar en este contexto que la edad avanzada se convierte en un factor inmunosupresor adicional y por esto el protocolo de inmunosupresión se altera para disminuir la dosis total de medicamentos en el paciente mayor. Hacemos hincapié en que muchos riñones perdidos e incluso muertes son causados por no-cumplimiento, un problema endémico en Puerto Rico y sobre el cual hemos escrito en el pasado[10]. La educación es crítica y sobre el tema escribe Zayas más adelante en este volumen.

INFECCIONES

La infección es la nemesis del paciente inmunosuprimido y de todos los programas de trasplante. La Tabla 7 enumera las infecciones frecuentes que vemos en nuestro Programa y la Tabla 8 las infecciones raras.

Tabla 7.
Infecciones Frecuentes en Pacientes Trasplantados en Puerto Rico 1977-1994

Catarro	Pneumocytis Carinii
Celulitis	Pulmonía
Citomegalovirus	Sepsis
Hepatitis B y C	Urosepsis
Micosis Cutánea y Onicomicosis	Varicella

Hacemos constar que aún las que llamamos "frecuentes" son infecciones muy raras en la practica clínica normal. Su manejo requiere mucha malicia diagnóstica, un diagnóstico agresivo y un manejo mas agresivo todavía. Por esta razón hospitalizamos a todos los pacientes con fiebre, aun cuando éstas parezcan ser condiciones benignas. Probablemente el éxito en el manejo de las infecciones en cualquier programa de trasplante esté relacionado con una política formal y estricta de diagnóstico y tratamiento agresivo. Con atención a la contaminación y con el uso profiláctico de trimetropin/sulfametoxasole logramos casi eliminar el Pneumocytis carinii[11], y con Gancyclovir y Acyclovir logramos disminuir la incidencia y severidad del cytomegalovirus en situaciones de alto riesgo. Casi no vemos candidiasis oral debido al lavado oral profiláctico con Mycostatin. Así mismo, en infecciones severas modificamos la inmunosupresión al grado que sea necesario, incluso a la suspensión total de todos los medicamentos, si así lo requiere el caso[12]. Así logramos que todos los casos enumerados en la Tabla 8 sobrevivieran, con excepción de dos de los aneurismas, y del paciente con strongyloidiasis.

CANCER

Posiblemente por la brecha que se crea en la vigilancia inmunológica, conjuntamente con los viruses oncogénicos, en trasplante de órganos existe

Tabla 8.
Infecciones Raras en Pacientes Trasplante en Puerto Rico 1977-1994

Aneurisma Aórtico Micótico por Salmonella
Aneurismas Ilíacos Micóticos Bacterianos
Cromoblastomicosis Cutánea
Histoplasmosis Pulmonar
Meningitis Criptocóccica
Meningitis por Sporotrix
Nocardiosis Generalizada
Pleuro-Pnemonitis por M. Kansasii
Pulmonía por Stronglyloides
Retinitis por Toxoplasma
Tuberculosis Pulmonar, Renal y Cutánea

una incidencia mas alta de tumores[13]. En Puerto Rico hemos visto ya varios tumores, con una incidencia global de cerca del 2% (Ver Tabla 9). Los tumores de piel se diagnostican y manejan con prontitud[14].

Tabla 9.
Cánceres Detectados y Manejados en Pacientes Trasplantados en Puerto Rico

Linfomas	3
Seno	2
Utero	2
Riñón	2
Colon	1
Tiroide	1

CARDIOVASCULAR

Al expandir la terapia de trasplante a grupos de paciente de alto riesgo como lo son diabéticos[2,8] y envejecientes[9], nos confrontamos con mayor incidencia de complicaciones cardíacas y vasculares, en adición a las infecciones[11]. La enfermedad cardíaca manifestada por infarto y/o muerte súbita se ve principalmente en el paciente mayor de 40 años y es la causa de muerte mas frecuente después del primer año de trasplante (P = 0.002).

OTRAS COMPLICACIONES

Reportamos pocas complicaciones técnicas. Las consideraciones y complicaciones urológicas las discute Acosta mas adelante, pero cabe resaltar una incidencia muy baja de rotura de tracto urinario (1.5%) y de infección de herida (1%), mucho mas bajas que las de la literatura; lo cual es muy importante pues ambas complicaciones conllevan considerable costo, morbilidad y mortalidad. Estos resultados se deben en parte a la atención meticulosa a los detalles técnicos, hemostasis obsesiva, antibióticos profilácticos, y a la selección de suturas poco reactivas.

Las complicaciones abdominales y gastrointestinales pueden ser muy graves, y requieren atención inmediata[15]. Resaltan las hernias internas, las cuales pueden ser un gran reto diagnóstico, y las sangrías. La Tabla 10 resume algunas de nuestras complicaciones. La mortalidad baja (excepto en pancreatitis) se debe al manejo agresivo, atención paralela a los componentes metabólico, farmacológico, inmunológico, a la cicatrización, y a la intervención de un equipo interdisciplinario. Sin embargo, la pancreatitis severa conlleva una mortalidad alta, en especial si se asocia a Citomegalovirus sistémico, si complica enfermedad cardíaca.

IMPACTO EN LA EDUCACION, INVESTIGACION Y ADMINISTRACION

El Programa de Trasplante de Puerto Rico complementa otras modalidades del país para el manejo de la enfermedad renal terminal, brindando esta opción a pacientes en Puerto Rico y algunos pacientes del exterior. Siendo trasplante tan parte de este complejo tratamiento, fue natural que participara de la evolución de grupos, sociedades y sistemas de apoyo. Así ayudo en el desarrollo del Consejo de Enfermedades Renales de Puerto Rico e Islas Vírgenes, Consejo Renal de Puerto Rico, Junta de Disposición de Cuerpos, Organos y Tejidos de Puerto Rico, Fundación Puertorriqueña del Riñón, Sociedad Puertorriqueña de Alergia e Inmunología, asociaciones varias de pacientes, enfermeras, técnicos y otros profesionales de la salud; Semana Renal, Vivencia Renal y otras actividades anuales varias de pacientes y profesionales; cursos de entrenamiento en inmunología y nefrología; congresos renales locales e internacionales; la Oficina y luego Organización de Obtención de Organos, y LifeLink de Puerto Rico; los Laboratorios de Histocompatibilidad; varios laboratorios de investigación, etc.

Fuera del país, hemos ayudado a fundar y desarrollar sociedades internacionales relacionadas con riñón, trasplante e inmunología, sobre todo en el ámbito de

Tabla 10.
Complicaciones Gastrointestinales y Abdominales Severas

	Número	Mortalidad
Obstrucción Intestinal	8	0
Perforación Intestinal con Peritonitis	3	0
Apendicitis Perforada con Absceso y Peritonitis	2	0
Citomegalovirus Gástrico	2	0
Hemorragia Masiva por Ulcera Péptica	2	0
Hemorragia Masiva por Varices	2	0
Hemorragia Masiva Colónica	3	1/3
Stronglyloidiasis	4	1/4
Pancreatitis	9	5/9

Hispanoamérica, tales como el Society for Organ Sharing, Sociedad Panamericana de Diálisis y Trasplante; cursos y simposios; el Registro Latinoamericano de Trasplante, y actividades y organizaciones varias de medicina critica.

Varios centenares de conferencias, artículos, presentaciones y abstractos internacionales, y un libro de texto ahora en su segunda edición complementan nuestra experiencia.

Apéndice 1.
Facultad y Personal del Programa de Trasplante 1974 - 1994
(*Programa Actual)

Cirujanos de Trasplante
*Eduardo A. Santiago Delpín
*Zulma A. González
*Luis A. Morales Otero

Cirujanos del Donante
*Ernesto Rivé Mora
José H. Amadeo
*Andrés Acosta Otero

Nefrólogos de Trasplante
Osvaldo Ramírez Muxo
Rafael Ramírez González
Laura Lespier
*Nivia E. Cruz
*Juan O. Pérez
*Mary Molina

Urólogo de Trasplante
***Dr. Andrés Acosta Otero**

Laboratorio de Histocompatibilidad
Eduardo A. Santiago Delpín (1976-83)
Edna Nettleship
Olga Reyes
*Sally de Echegaray
Lourdes Ortiz
*Angel Rodríguez Trinidad (1983- hoy)
*Sara Gorbea
*Delia M. Rivera
*Glenda Rivera
*Dorcas Sierra
* David González

Administrador
* Sr. Edwin Fernández

Siquiatras
M. García Saavedra
A. Miranda
*José A. Alonso

Dietistas
Myrna Caniglia
Emérita del Valle
Rosanna Almeyda
Mildred Hernández
Nahir Rivera
Hilda Martínez
Diana Ayala
Luz Rodríguez
*Wanda Borges

Director Nefrología Auxilio Mutuo
*Dr. W. Mercado Rosso

Coordinadores de Trasplante
Nelson Estepa
María Luisa Ruiz
Carmen Elena Rivera
Angel González
Marta Hernández
Lexie Greene
*Jeannette Domínguez
*Edgardo Zayas
*Minerva Malavé
Rebeca Rodríguez

Obtención de Organos
Eduardo A. Santiago Delpín (1976-87)
Nelson Estepa
Luis Andino
Angel González
Juan Rivera
*Luis A. Morales Otero (1987- hoy)
Mario Díaz
Marta Fernández
Rebeca Rodríguez
*Alex Veve
*María Veve
*José Nespral
Edgardo Zayas

Oficina de Trasplante y de Médicos
María L. Díaz
Juan B. García
Antonia Rivera
Wilda Navas
Carolyn Santiago
Angie Rullán
Nancy Pagán
Viola Rodríguez
Brenda Zayas
*Monín Aponte
*Frances Couvertier
Jenny Flores
Sandra Berlingeri
Elizabeth Rivera
*Lissette Torres
*Sandra García
*Gloria Reyes

Supervisoras Sala de Trasplante
Irma Rodríguez
Petra Morán
Tomás Rivera
Ana Laboy
María Isabel Estrada
Lexie Greene
*Elba Cancel

Especialistas Entrenados en Trasplantes
Cirujanos
Nicolás Rizik, Rep. Dominicana
Andrés Hernández, El Salvador

Nefrólogos
Hilda Lafontaine, Rep. Dominicana
Guillermo Alvarez, Rep. Dominicana

Coordinadores de Trasplante
Olga Calderón, Costa Rica
Itzel Gómez, Panamá
Cándida González, Rep. Dominicana
Deisi de Ayala, El Salvador

Rotaciones Cortas del Exterior
Nelson Quijano Guillén, El Salvador
Francisco Molina Solano, El Salvador
Iván Anaya de Paz, El Salvador
Germán Belloso, El Salvador
Daniel Jiménez, Rep. Dominicana

Trabajadoras Social
Dora King
J. Westerhuis
Zayda González
Sonia Bracete
Ana Rodríguez
Héctor Mendoza
Ivette Delgado
Nilsa Limpert
Annette Colón
Zulma Rijos
Carmen Ada Morales
Rafael Ramírez
Felícita Cotto Rivera
*Milly Souchet

Programa de Ciclosporina
María Pérez

Consejo Renal
Marta Tejada
*Agustín Díaz

Junta de Organos y Tejidos de P.R.
*Petrona Benítez

Apéndice II.
Actividades y Logros Académicos del Programa de Trasplante Renal

I. ENTRENAMIENTO DIRECTO DE PROFESIONALES DE PUERTO RICO Y DEL EXTERIOR EN ROTACION POR TRASPLANTE

252 Residentes de Cirugía y Urología de los programas de la Universidad de Puerto Rico, Ponce y Mayagüez.

70 Enfermeras de Nefrología de Puerto Rico.

50 Estudiantes de Medicina de la Universidad de Puerto Rico y Cayey.

23 Fellows de Nefrología del Hospital Universitario y Hospital de Veteranos.

22 Estudiantes Graduados (MS, PhD) con tesis de maestría o doctorado en Inmunología, Salud Pública o Consejería de Rehabilitación.

15 Internos de Consejería de Rehabilitación de la Universidad de Puerto Rico, Recinto de Río Piedras.

1 Cirujano de Trasplante de El Salvador.

1 Cirujano de Trasplante de la Rep. Dominicana.

2 Nefrólogos de Trasplante de la Rep. Dominicana.

3 Técnicos de Histocompatibilidad de la Rep. Dominicana.

4 Coordinadores de Trasplante de Costa Rica, Rep. Dominicana, Panamá y El Salvador.

II. CURSOS Y EXHIBICIONES INTERNACIONALES Y LOCALES ORGANIZADOS O PRODUCIDOS POR LA FACULTAD DE TRASPLANTE (MEDICOS Y ENFERMERAS)

17 Conferencias y Congresos Internacionales de Trasplante, Inmunología o Urología.

8 Simposios de Inmunología (Recinto de Ciencias Médicas, Asociación Médica de Puerto Rico, American College of Surgeons Capítulo de Puerto Rico y Hospital Auxilio Mutuo).

14 Foros Raffucci de Investigación Científica Quirúrgica.

7 Vivencias para Profesionales de la Salud en Diálisis y Trasplante.

3 Cursos "Advanced Trauma Life Support".

3 Cursos Universitarios Capacitación de Enfermeras de Nefrología.

2 Cursos Capacitación para Designados de Trasplante en P. R.

Primer Seminario Educativo para Pacientes en Diálisis y Trasplante de Puerto Rico.

MAS,

Sobre 150 conferencias a Colegios Católicos, iglesias, hospitales e intensivos, fábricas y compañías farmacéuticas, universidades, escuelas de medicina, oficinas del Gobierno de Puerto Rico y Federal, Clubes Leones, Exchange y Rotarios.
30,000 Solicitudes Donación de Organos
Cursos Nefrología Pediátrica
Proyectos Varios Comunitarios de Educación y Prevención.
Seminarios Cáncer y Enfermedades Prostáticas.
Journal Club Trasplante (Mensual)

III. POSICIONES ACADEMICAS LOCALES POR FACULTAD MEDICA DE TRASPLANTE

1. Decanato Asociado de Ciencias Biomédicas – Universidad de Puerto Rico.
2. Presidencia, Facultad Médica Hospital Universitario, Universidad de Puerto Rico.
3. Dirección, Agencia de Obtención de Organos de Puerto Rico.
4. Dirección, Departamento de Cirugía, Recinto Ciencias Médicas, Universidad de Puerto Rico.
5. Dirección, Laboratorio de Cirugía Experimental, UPR.
6. Dirección, Laboratorio de Histocompatibilidad, UPR.
7. Director Asociado, Departamento de Cirugía, Hospital de Veteranos.
8. Dirección, Centro Renal Pediátrico, Hospital Pediátrico Universitario.
9. Dirección, Servicio Nutrición Hospital Universitario.
10. Dirección, Sección Urología, Hospital de Veteranos.
11. Dirección,Programa de Investigación Biomédica para Minorías.
12. Dirección, Programa de estudiantes de Cirugía de Tercer Año.
13. Dirección, Programa Entrenamiento Residentes de Cirugía, Hospital de Veteranos.
14. Presidencia, Comité varios en Hospital Universitario, Escuela de Medicina, Universidad de Puerto Rico, Hospital Auxilio Mutuo y Hospital de Veteranos.

IV. PARTICIPACION FACULTAD MEDICA COMO PROFESORES VISITANTES O CONFERENCIANTES INVITADOS

Argentina	Honduras
Bahamas	Italia
Canadá	Japón
Costa Rica	México
Ecuador	Panamá
El Salvador	Perú
España	República Dominicana
Estados Unidos	Singapur
Francia	Venezuela
Guatemala	

110 Conferencias por Invitación o de Honor

En Puerto Rico:

495 Conferencias de rutina a estudiantes de Medicina, Enfermería, Salud Pública, Profesionales de Salud, etc.

V. PROGRAMAS O SERVICIOS CREADOS O DESARROLLADOS

(Incluye Planificación, Permisos, Ubicación, Construcción o Mejoras, Acreditaciones, Presupuestos, manuales, Programas, TQM, TCS, Reclutamiento, Entrenamiento, etc.)

1. Programa de Trasplante de Puerto Rico
2. Agencia de Obtención de Organos y Banco de Tejidos de Puerto Rico.
3. Programa de Soporte Nutricional del Hospital Universitario.
4. Laboratorios de Histocompatibilidad de Puerto Rico, Escuela de Medicina y Hospital de Veteranos.
5. Centro Renal Pediátrico del Hospital Pediátrico Universitario.
6. Fundación Puertorriqueña del Riñón.
7. Co-Participación Unidad de Litotripcia Extracorpórea (UPR y Hospital de Veteranos).

VI. INVESTIGACION POR MIEMBROS DE LA FACULTAD MEDICA Y DE ENFERMERIA

Cáncer (Eastern Cooperative Oncology Group)
Diálisis
Donación y Obtención de Organos
Enfermedad Renal en Infantes
Etica
Evaluación de Programa de Prevención
Hiperplasia Prostática (VA Cooperative Research Group)
Histocompatibilidad
Infecciones
Inmunobiología
Inmunopotenciadores
Inmunosupresión en Glomerulonefritis en Niños
Lípidos (Experimental y Clínico)
Nutrición
Técnica
Trasplante Clínico (Inmunosupresión, Diabetes, Embarazo)
Trasplante en América Latina

VII. DONATIVOS OBTENIDOS PARA EDUCACION E INVESTIGACION POR FACULTAD MEDICA Y DE ENFERMERIA

1. National Institutes of Health (Varios)
2. Department of Health and Human Services (Department of Transplantation) (Varios)
3. Legislatura de Puerto Rico (Varios)
4. Johnson & Johnson (Varios)
5. Sandoz Pharmaceuticals (Varios)
6. Abbott Health Care Co.
7. Fundación Puertorriqueña del Riñón
8. Fundación del Buen Samaritano (Varios)
9. Fundación Educativa F.L. Raffucci (Varios)
10. Bus-Shelter Interamericana
11. Angel Ortiz Advertising

VIII. PUBLICACIONES DEL PROGRAMA DE TRASPLANTE

76 artículos científicos y capítulos sobre Trasplante, Inmunología, Cirugía, Urología. Total para 1970-1994 es de 122 artículos.

28 Editoriales y Ensayos
5 números de Revistas científics como Editores Invitados

2 Ediciones del Silabus de Trasplante

1 Libro de trasplante "Trasplante de Organos" - el único en español - en su segunda edición

1 video-curso (6 horas, 3 videocassettes) sobre Inmunología

1 Registro Latinoamericano de Trasplante

Panfletos varios sobre donación y trasplante para educación pública.

IX. POSICIONES DIRECTIVAS EN SOCIEDADES NACIONALES E INTERNACIONALES POR FACULTAD MEDICA Y DE ENFERMERIA

Internacional y Estados Unidos

1. Fundador Society for Organ Sharing
2. Fundador Sociedad Panamericana de Diálisis y Trasplante
3. Fundador, Registro Latinoamericano de Trasplante
4. Presidencia, Sociedad Panamericana de Diálisis y Trasplante
5. Secretaría, International Transplantation Society
6. Gobernador, American College of Surgeons
7. Junta Consultiva, Partnership for Organ Donation
8. Concilio, Society for Organ Sharing
9. Delegado, Federación Panamericana de Medicina Crítica
10. Delegado, Societé Internationale D'Urologie
11. Delegado, Caribbean Prostate Health Council
12. Comité Etica, International Transplantation Society
13. Comité de Investigación, American Nephrology Nurses Association
14. Comité Reglamento, (Presidente) American Society of Transplant Surgeons
15. Comité Relaciones Exteriores, United Network for Organ Sharing

Puerto Rico

16. Fundadores, Sociedad Puertorriqueña de Medicina Crítica (2 Facultativos)
17. Fundadores, Fundación Puertorriqueña del Riñón (2 Facultativos)
18. Fundador, Fundación Educacional Francisco L. Raffucci
19. Fundador, Sociedad Puertorriqueña de Inmunología y Alergia
20. Presidencia, Capítulo de P.R. del American College of Surgeons (3 Facultativos)
21. Presidencia, Sociedad Puertorriqueña de Medicina Crítica (2 Facultativos)
22. Presidencia, Fundación Puertorriqueña del Riñón
23. Presidencia, Sociedad Puertorriqueña Nutrición Enteral y Parenteral
24. Presidencia, Capítulo de P.R. de la American Nephrology Nurses Association
25. Vice Presidencia Consejo Renal de Puerto Rico
26. Secretaría Ejecutiva, Fundación Puertorriqueña del Riñón
27. Tesorería, Fundación Puertorriqueña del Riñón

Membresía regular en sobre 30 sociedades profesionales adicionales.

X. JUNTAS EDITORIALES

1. Transplantation Proceedings
2. Clinical Transplantation (Minneapolis)
3. Transplant International (Holanda)
4. Transplantation in Developing Countries (India)
5. Medicina Moderna (Perú)
6. Nefrología Mexicana (México)
7. Nefrología Latinoamericana (Venezuela)
8. Editorial Universitaria (UPR)
9. Boletín Asociación Médica de Puerto Rico

XI. PROYECTOS DE LEY ESCRITOS Y RADICADOS

1. Ley Muerte Cerebral - 1983
2. Ley Ciclosporina - 1985
3. Resolución Conjunta sobre la Soc. Panamericana de Diálisis y Trasplante - 1988
4. Resolución Conjunta sobre la Fundación Puertorriqueña del Riñón - 1988
5. Proyecto Donación en Licencias Conducir (1988)
6. Proyecto Consentimiento Obligado - Pendiente Aprobación
7. Proyecto Nueva Ley de Trasplante - Pendiente Aprobación
8. Proyecto Terminación Respiración Artificial - Pendiente Radicación

XII. 500 TRASPLANTES RENALES ENTRE 1977 Y 1994

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14. Lugo-Janer, G.J., Sánchez, J.L., Santiago Delpín, E.A., Prevalence and Clinical Spectrum of Skin Disease in Kidney Transplant Recipients. J. Am Acad Dermatol. 24: 410, 1991.

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Artículos Originales:

La Donación de Organos: Problema Nacional (USA) y Local (P.R.)

—Luis A. Morales Otero, M.D.

El progreso monumental tanto en las técnicas quirúrgicas, el cuidado pre y post operatorio de pacientes críticos, y sobre todo en la inmunosupresión han permitido que el transplante renal sea ya un tratamiento reconocido para los pacientes en fallo renal crónico. El fallo renal crónico constituye en Norteamérica y Puerto Rico un serio y grave problema de salud para ambas poblaciones.En Puerto Rico para el año 1993, la incidencia de esta enfermedad que se define como el número de casos nuevos por millón por población al año fue de 225.1 casos (Tabla 1), igual a 788 casos nuevos en el 1993. Lo que representa un aumento de casi 75 casos por millón por población desde el año 1990, cuando se reportaron 150 casos nuevos por millón por población. Estadísticas que sin lugar a duda son sumamente alarmantes, debido a que nuestras autoridades de salud y personal médico tienen más responsabilidad decisional en cuanto a los métodos de tratamiento que se le ofrecerán a estos pacientes. En la actualidad existen 3 modalidades de tratamiento para estos pacientes, la hemodiálisis, la diálisis peritoneal y el trasplante renal. Hay actualmente 3,023 pacientes en fallo renal en alguna de las modalidades de diálisis en Puerto Rico[1] (Figura 1).

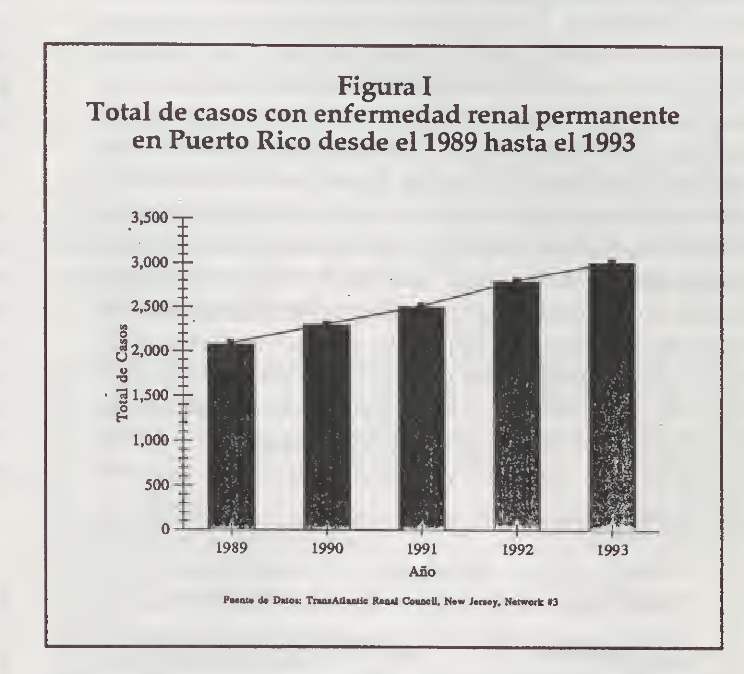
Tabla I

Total Puerto Rico	Población	Total Nuevo	Incidencia Global
TOTAL	3,522,037	793	225.15

En Norte América para finales de 1994, principios de 1995 la lista nacional de pacientes en espera de un riñón era de 27,555 pacientes.Sin embargo, el número de trasplantes que se llevaron a cabo en el 1993 fue de tan solo 10,927 trasplantes renales, siendo 2,760 de éstos, donantes vivos[2].

La situación local en Puerto Rico al ver la Tabla II encontramos que los pacientes en lista de espera para el 1988 era de tan solo 120 pacientes, mientras que seis años después vemos que este número sube a 219 pacientes, 99 pacientes más. Nos llama la atención en la Tabla II el hecho de que a pesar de aumentar el

Figura I
Total de casos con enfermedad renal permanente en Puerto Rico desde el 1989 hasta el 1993



número de pacientes en la lista de espera, el número de trasplantes de donantes cadavéricos en Puerto Rico baja, así como también el número de donantes vivos para el 1994 donde el porciento de pacientes en lista de espera que se trasplantó fue de tan solo 3%. Reflejo esto de que las listas de espera aumentan, pero las donaciones se mantienen bajas.

¿Cuál ha sido la actividad de recuperación de órganos en Puerto Rico en los últimos años? La Ley 11 del 15 de abril de 1974, la ley de donaciones anatómicas

Tabla II

	1988	1989	1990	1991	1992	1993	1994
Pac. lista espera	120	130	145	163	177	195	219
Cadáver	18 (15%)	11 (8%)	13 (9%)	9 (6%)	9 (5%)	13 (7%)	7 (3%)
Donante vivo	12	23	22	27	29	24	16
Total trasplante	30	34	35	36	38	37	23

*Director, Agencia Recuperación de Organos y Tejidos de Puerto Rico; Cirujano, Programa Trasplante de Puerto Rico; Catedrático Asociado, Departamento de Cirugía, Universidad de Puerto Rico.

en Puerto Rico se legisló principalmente para la recuperación de cadáveres para nuestras escuelas de medicina. La ley de muerte cerebral donde se redefine la muerte en Puerto Rico para facilitar la obtención de órganos en Puerto Rico se legisló en el 1983 (Tabla III). La tabla IV nos presenta la actividad de recuperación de órganos en Puerto Rico desde el 1985. Notamos en la misma que aunque el número de llamadas al Programa para posibles donantes aumenta en los últimos años, el número de órganos extraídos no aumenta. Podemos concluir que aunque el número de donantes potenciales aumenta al aumentar las llamadas, las recuperaciones no aumentaron porque la cantidad de donantes excluidos por razones médicas es alta. Sugiriendo esto que, aunque aumenta el número de llamadas, estas pudieron haber sido tardías, sufriendo estos pacientes un deterioro en la condición médica que imposibilitó la recuperación. En segundo lugar, el número de familias que no donó, fue alto. Anteriormente esta tendencia baja a la donación había sido motivo de preocupación y de estudio en nuestro Programa de Trasplante[3,4], y los estudios demostraban de que a pesar que la mayoría de los encuestados saben de trasplante y donación, estas siguen bajas. Sin embargo, la contratación de un profesional de la salud para educación en nuestro Programa y para la difusión de información al pueblo, nos alerta que es una educación masiva y continua lo que podría ser la respuesta a estas donaciones bajas[5].

Finalmente, la ayuda de una agencia profesional norteamericana sin fines de lucro, fue contactada, LifeLink of Florida para ayudar a la implementación de este desarrollo educativo a todos los niveles, así como para la implantación de los equipos de recuperación y los protocolos necesarios para este tipo de actividad, bajo las debidas reglamentaciones federales que los rigen. en la actualidad el promedio de riñones recuperados por millón por población en los Estados Unidos es de 17 por millón por población. LifeLink de la Florida mantiene un promedio de 32 casos recuperados por millón población. Se destacan también por un desarrollo especial educativo en los hospitales de las regiones en que ellos participan. Ciframos nuestras esperanzas y la de nuestros pacientes renales en que una educación amplia a través de toda la isla, así como la ayuda de estos profesionales de la salud, conviertan una ilusión o un sueño en un regalo de vida para nuestros puertorriqueños con fallo renal crónico.

Tabla III
Leyes que rigen trasplante en Puerto Rico

Ley 11, 15 de abril de 1974	: Ley de Donaciones Anatómicas
Ley 5, 13 de sept. de 1983	: Enmienda de Muerte Cerebral
Resolución 5, 25 de abril 1984	: Ley de Ciclosporina
PS 76 (Aprobada por la Legis latura; Pendiente firma del Gobernador)	: Enmienda la Ley 11 de Donaciones Anatómicas: Deber de todo hospital notificar la opción de donación. Requiere además la opción de donar al expedir o renovar la licencia de conducir.

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Tabla IV
Obtención local de órganos en Puerto Rico

	Número de llamadas	Sin muerte cerebral	Excluido razón médica	no donó familia	Donaron Pero no se obtuvieron	Extraídos
1985	5	—	—	1	—	3
1986	17	—	2	1	—	3
1987	20	1	6	6	1	7
1988	32	2	11	7	5	7
1989	40	2	18	10	3	7
1990	36	3	13	10	6	4
1991	29	2	12	5	6	4
1992	18	3	3	6	4	2
1993	39	6	14	4	7	8
1994	35	8	4	10	8	5

Artículos Originales:

Discordancia entre Conocimientos y Actitudes sobre Donación de Organos en Profesionales de la Salud

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La tasa de donación de órganos en Puerto Rico se encuentra entre las más bajas del mundo (1). Actualmente la lista de espera de pacientes que no cuentan con un donante vivo, es de aproximadamente 260 candidatos. Debido a la pobre actividad de recuperación de órganos en nuestra Isla, estos pacientes esperan un promedio de 3 a 5 años antes de ser llamados para un trasplante.

Muchos de estos pacientes se van deteriorando a causa de su condición renal o no están en condiciones de recibir el trasplante al momento de ser llamados; aunque pocos mueren en la espera. La incidencia de fallo renal permanente en Puerto Rico es de 170/millón/año, prevaleciendo en diálisis aproximadamente 2,600 pacientes (2). Anualmente se realizan entre 35 - 45 trasplantes de riñón, de los cuales el 66% provienen de familiares que han decidido donar uno de sus riñones, el restante 33% proviene de donante cadavérico. El donante cadavérico es el paciente que progresa a muerte cerebral.

En nuestro país existe una alta incidencia de pacientes con este diagnóstico. La muerte está definida legalmente por la Ley #6 del 13 de septiembre de 1983 la cual es una enmienda a la Ley #11 del 15 de abril de 1974 que regula, autoriza y promueve las donaciones anatómicas.

A pesar de la existencia de estas leyes, son pocos los referidos de donantes potenciales cadavéricos que se reciben de las diferentes instituciones hospitalarias. Es interesante señalar que un estudio realizado en el 1991 por Fernández y colaboradores demostró la existencia de dificultades en la dinámica interna entre las unidades generadoras de donantes y el procedimiento establecido de recuperación de riñón (3). Las medidas tomadas para corregir los hallazgos resultaron en un aumento en los referidos no así en el número de recuperaciones.

En nuestro interés por continuar desarrollando estrategias para promover la donación de órganos, diseñamos un estudio que nos permitiera indagar sobre las actitudes y conocimientos de los médicos y enfermeras en relación al proceso de donación y recuperación de órganos.

Materiales y Métodos

Para realizar el mismo se distribuyeron 495 cuestionarios en 9 hospitales del área metropolitana (Tabla I). La población estudiada consistía mayormente de enfermeras, médicos y otros profesionales dela salud que laboran en el área de intensivo, sala de emergencia y sala de operaciones.

Tabla I
Hospitales Participantes

Hospital	Tipo
Hospital Auxilio Mutuo	Privado
Hospital Del Maestro	Privado
Centro Médico	Público
Hospital Universitario	Público
Hospital Pediátrico	Público
Hospital Hnos. Meléndez	Privado
Hospital San Pablo	Privado
Hospital Matilde Brenes	Privado
Hospital Universitario Ramón Ruiz	Público

Los cuestionarios contaban con una sección de datos demográficos (Tabla II); 28 preguntas de las cuales 15 estaban dirigidas a medir conocimientos y 13 medían la actitud hacia la recuperación y donación de órganos.

Resultados

Entre los hallazgos significativos de actitud, encontramos que el 91% de los encuestados cree en la donación de órganos y un 78% sería donante de órganos (Figura 1). El 85% activaría el coordinador de trasplante en caso de un donante potencial y el 41% cree que la petición de donación recae sobre los profesionales primarios del paciente (Figura 2). El 75% piensa que la familia se sentiría mejor luego de haber donado, pero el 71% piensa que se le añadiría más ansiedad a la familia al solicitar el consentimiento para la donación de órganos (Figura 3).

Programa de Trasplante de Puerto Rico, Hospital Auxilio Mutuo, Hato Rey, Puerto Rico

Tabla II - Datos Demográficos

Sexo	Femenino 291, Masculinos 76
Religión	Católicos 230, Protestantes 81, Ninguna 7, No contestaron 52, Otras 2
Pueblo	Area Metropolitana 209, Isla 131, No contestaron 32
Edad	< 20 años 1, 21 -30 años 127, 31-40 años 151, 41-50 años 67, 51-60 años 13, > 60 años 4, No contestaron 9
Area de Trabajo	Sala de Emergencia 79, Sala de Operaciones 69, Unidad de Cuidado Intensivo 190, Otras áreas 12, No contestaron 22
Profesión	Enfermeras 322, Médicos 38, Otros 5, No contestaron 7
Años en la profesión	0-4 años 190, 10- 20 años 119, 21-30 años 35, 31-40 años 9, > 41 años 2, No contestaron 17
Empresa	Pública 168, Privada 200, No contestaron 4
Posición	Administrativa 48, No administrativa 279, No contestaron 45
Orientación de Donación Previa	Sí 154, No 205, No contestaron 13
Cuestionarios Entregados	495
Cuestionarios Recibidos	372

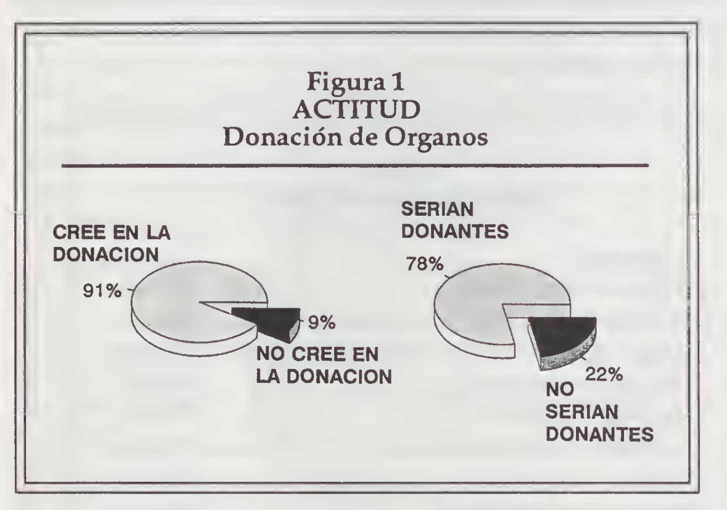


Figura 1
ACTITUD
Donación de Organos

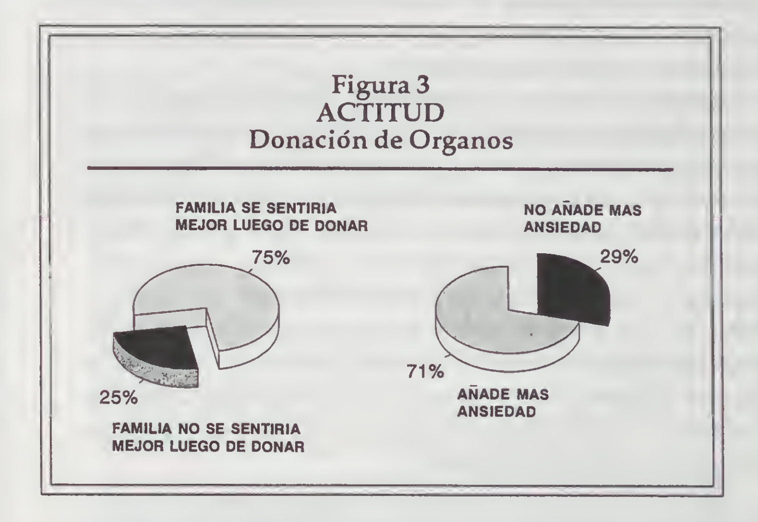


Figura 3
ACTITUD
Donación de Organos

Pudimos observar la falta de conocimiento en algunas áreas relacionadas a la donación; el 71% desconoce la posición religiosa con respecto a la donación; el 41% desconoce las medidas de soporte de un donante cadavérico y el 44% desconoce la existencia de un protocolo para la donación de órganos en su propia institución (Figura 4). El 55% de los encuestados indicó no haber recibido orientación sobre donación de órganos, sin embargo en la mayoría de los hospitales encuestados se les había ofrecido algún tipo de orientación o literatura en el pasado por nosotros mismos.

Discusión

En estudios previos (4) en la población de Puerto Rico demostramos que 86% de los entrevistados conocía sobre enfermedad renal, diálisis, donación y trasplante, y que 65% donaría sus órganos. Sin

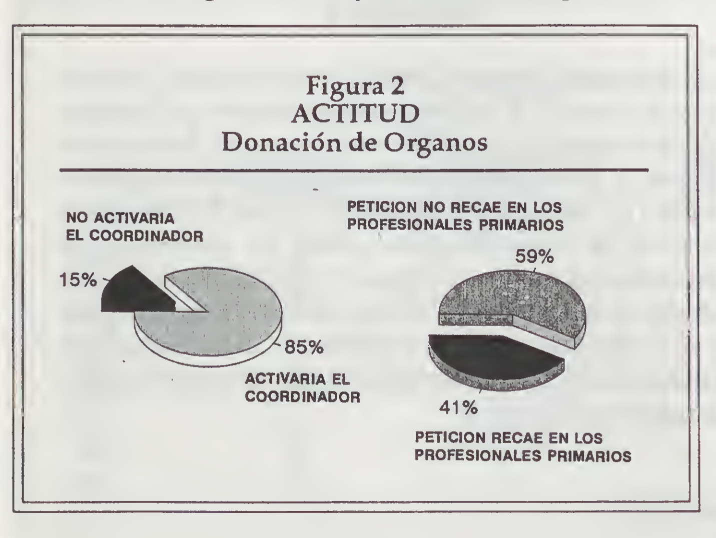


Figura 2
ACTITUD
Donación de Organos

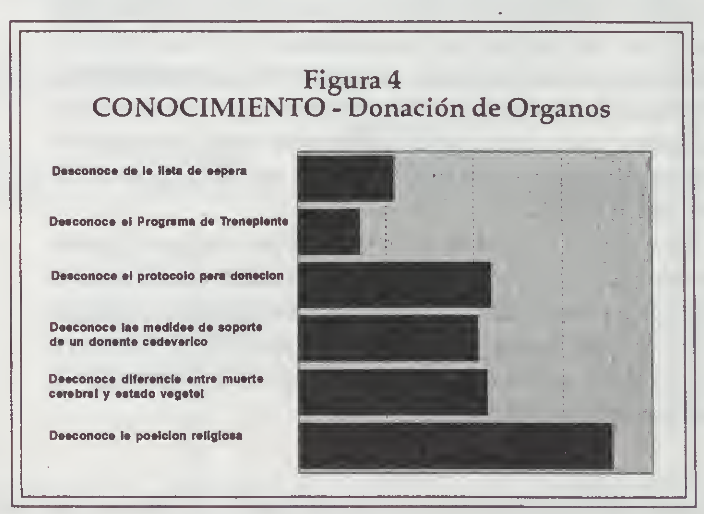


Figura 4
CONOCIMIENTO - Donación de Organos

embargo, la realidad en el momento de donar es otra. Esto se explica en parte por las dificultades en la interfase con las unidades de intensivo, y en parte por la dinámica peculiar que ocurre en los puertorriqueños ante la muerte (3). En América Latina ocurre otro tanto, y la donación de vivo es el doble de la donación cadavérica (1). La excelente experiencia de España con la penetración hospitalaria y el entrenamiento de los coordinadores reafirma estas conclusiones.

Luego de analizar nuestros resultados, llegamos a la conclusión de que a pesar de la actitud favorable de los profesionales de la salud hacia la donación de órganos, la carencia de conocimientos es un factor limitante en la detección y manejo del donante potencial. Estudios en los Estados Unidos refuerzan estos hallazgos (5-9).

Entendemos que una posible solución a la falta de conocimiento sobre el proceso de donación y recuperación de órganos, sería integrar al currículo universitario una sección compulsoria sobre este tema e integrar al programa de educación en servicio de los hospitales, charlas relacionadas a este tema utilizando como recurso el personal de las agencias de recuperación de órganos incluyendo temas tales como:

- identificación del donante potencial
- mantenimiento del cadáver
- solicitud del consentimiento para donar
- procedimientos para la notificación a las agencias de recuperación

Si bien es cierto que sin donaciones no hay trasplantes, también es cierto que con profesionales de la salud debidamente capacitados para participar en el proceso de la recuperación de órganos, lograremos mejorar la actividad de trasplante para nuestro pueblo. Además, la donación de los órganos de un familiar fallecido y el milagro del trasplante pueden dar sentido y ser solución parcial a una muerte desgraciada. Así mismo, la participación en reconocer una posible donación en su paciente fallecido, suele disminuir el sentido de pérdida y de frustración del profesional de la salud ante la muerte.

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Experiencias con el Donante Vivo no Relacionado en Puerto Rico

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El Programa de Trasplante de Puerto Rico comenzó sus actividades en enero de 1977 utilizando donantes vivos de la familia. La actividad de donación cadavérica fue siempre limitada, pero a partir de 1983, con la aprobación de la Ley de Muerte Cerebral que modificaba la Ley de Trasplante de 1974, surge una lista de espera significativa para riñones de cadáver. La incidencia de enfermedad renal terminal va en alarmante aumento y no guarda proporción con el número de órganos disponibles y esto ha creado el problema de una lista de espera progresivamente más larga. Debido a esta situación, y a pesar de estudios llevados a cabo para identificar sus causas, se hizo ineludible el buscar otras opciones para llevar a cabo un mayor número de trasplante. Así, para el 1990 comenzamos a aceptar a algunos donantes vivos no relacionados para darle oportunidad de trasplante a aquellos que no tenían donante vivo en su familia. Esta decisión se tomó en parte y sobre todo, por el argumento presentado por algunos cónyuges de ofrecerse de voluntarios ante la inhabilidad nuestra de obtenerle a su familiar un órgano de trasplante cadavérico. Esto se explica porque en nuestra cultura puertorriqueña se caracteriza por ser muy dadivosa y ante enfermedades terminales se percibe como muy natural que la gente cercana desee voluntariamente ayudar a alguien menos afortunado ofreciéndole un órgano para trasplantarlo, aun cuando no sea familia.

Los programas de trasplante clasifican a los donantes no relacionados como aquellos que comparten lazos emocionales, sentimentales y sicológicos pero que no tienen consanguinidad. En un estudio reciente en Méjico se señalan como "el donador emocionalmente relacionado". En el Registro Latinoamericano de Trasplante que se corre conjuntamente desde Puerto Rico y Brasil, (1), se hace el señalamiento de que los brasileños consideran consanguinidad de segundo grado como donante vivo no relacionado.

Política del Programa de Trasplante

El 1 de febrero de 1988, debidamente constituido el Programa de Trasplante de Puerto Rico discutió extensamente el tema de donación de vivo no relacionado, y desarrolló la siguiente política:

"El Programa de Trasplante de Puerto Rico se expresa a favor de la donación de donante vivo no relacionado sólo en aquellos casos donde no exista otro donante relacionado posible; donde exista una presión muy grande del voluntario no relacionado; donde, aunque no exista consanguinidad existe compatibilidad de sangre y tejido; donde, en adición a las evaluaciones rígidas de donante vivo relacionado el donante vivo no relacionado se someta a una extensa evaluación por trabajador social para demostrar que existe estabilidad en el matrimonio o en la amistad; donde se demuestre que no existirá beneficio económico para el donante; donde se demuestre que existirá beneficio emocional al ayudar a su cónyuge o amigo; y donde se pueda demostrar que el no donar puede resultar en perjuicio de este donante".

Se estableció que se podían aceptar cónyuges, familiares por matrimonio, y algunos amigos o hijos de crianza.

Más luego, el 2 de noviembre de 1992 se rediscutió el tema en el Comité de Trasplante y se estableció que "tan sólo se aceptará donante vivo no relacionado que tuviera afinidad fuerte y demostrable. Esto incluye cónyuges, hijos o padres de crianza, y ocasionalmente cuñados o yernos; esos últimos dos tan sólo bajo circunstancias excepcionales".

Finalmente, el 22 de septiembre de 1993 se reafirmó el Programa de Trasplante en no aceptar vivos no relacionados con excepción de cónyuges, hijos, padres o hermanos de crianza.

Materiales y Métodos

Para evaluar la situación actual de la donación de vivo no relacionado en Puerto Rico utilizamos cuestionarios tanto para el donante como para el recipiente (ver cuadro 1 y 2). El cuestionario fue complementado entrevistando tanto al donante como al recipiente por vía telefónica o personalmente. En adición a esto se hizo una revisión retrospectiva de los expedientes para identificar la histocompatibilidad y el estado actual de la salud del recipiente incluyendo la función del riñón trasplantado. Finalmente se verificó parte de la información con los datos estadísticos del TransAtlantic Renal Council en Nueva Jersey al cual pertenece Puerto Rico.

Programa de Trasplante de Puerto Rico, Hospital Auxilio Mutuo, Hato Rey, P.R.

Cuadro I
Entrevista - Donante

Nombre: ____________________

1. Edad __________

2. Relación con el donante
   esposo(a) ________ amigo ________ otro ____________

3. Años de la relación antes de la donación años ________

4. ¿Qué lo (a) motivó a la donación?
   ____
   ____
   ____

5. Lazos afectivos después de la donación
   igual ________ mejor ________ más distanciado ________

6. ¿Si tuvieras que hacerlo de nuevo, lo harías?
   Sí ________ No ________

7. Salud luego de donación ____________________

Cuadro II
Entrevista - Recipiente

Nombre: ____________________

1. ¿Trabaja "full time"? Sí ________ No ________

2. ¿Trabaja "part time"? Sí ________ No ________

3. Actividad diaria ____________________
   ____
   ____

4. ¿Aceptaría otro donante no relacionado?
   Sí ________ No ________

5. Relación afectiva con el donante después de la donación
   igual ________ mejor ________ peor ________

Resultados

En total llevamos a cabo 21 trasplante de riñón con donante vivo no relacionado entre 1990 y 1993. Las edades fluctuaron entre 18 y 55 años de edad. La relación con el donador se puede ver en el cuadro 3. Las esposas donaron en proporción mayor a sus esposos que viceversa; incluso hubo una ex-esposa. En este estudio se utilizaron 4 amigos cercanos.

La evaluación médica y sicológica fue rigurosa en cada uno de los donantes y recipientes yendo más allá de la ya rigurosa evaluación de los donantes en el Programa de Trasplante de Puerto Rico. En adición a la evaluación normal se llevaba a cabo una entrevista siquiátrica y por lo menos una entrevista específica con el cirujano de trasplante.

Complicaciones. No hubo complicación médica o quirúrgica alguna, ni temprana ni tardía. Estos datos se desprenden del expediente durante el trasplante, de las evaluaciones en el expediente pos trasplante, y de la entrevista.

Motivación para la donación. La figura 1 nos indica

Cuadro III
21 Trasplantes

Donador vivo no relacionado 1990-1993
Edades: 18 - 55 años

Relación del Donador	
Esposa	10
Esposo	3
Ex-esposa	1
Cuñados	2
Yerna	1
Amigos	4

las contestaciones típicas a la pregunta relacionada con motivación. La mayor parte de los donantes vivos no relacionados donaron por estar preocupados por la salud de su recipiente no relacionado. Otro porcentaje donó por amor a su cónyuge o amigo mientras que cuatro de los 17 donaron porque lo consideraron natural o que era su responsabilidad donar. La relación entre el donante y el recipiente se fortaleció en la mayoría de las parejas aunque en uno de 17 resultó en un distanciamiento (Figura 2). Así mismo, la mayor parte de los donantes (88%) donarían nuevamente a la misma persona.

Sobrevida. La sobrevida actuarial de los recipientes a un año fue de 95% y la del injerto del 85% utilizando análisis actuarial (Life Table Analysis). Ni rechazos ni muertes se asociaron a disparidad genética en DR (NS), ni cultivo mixto de linfocitos (NS), ni a transfusiones previas (NS).

Función renal. La creatinina al año en el grupo de recipientes osciló entre 1.0 y 1.9 mg/dl.

Rehabilitación. Doce de 17 recipientes trabajan a tiempo completo y tres de 17 a tiempo parcial, así que la rehabilitación es excelente. (Ver figura 3).

Figura 1
MOTIVACION

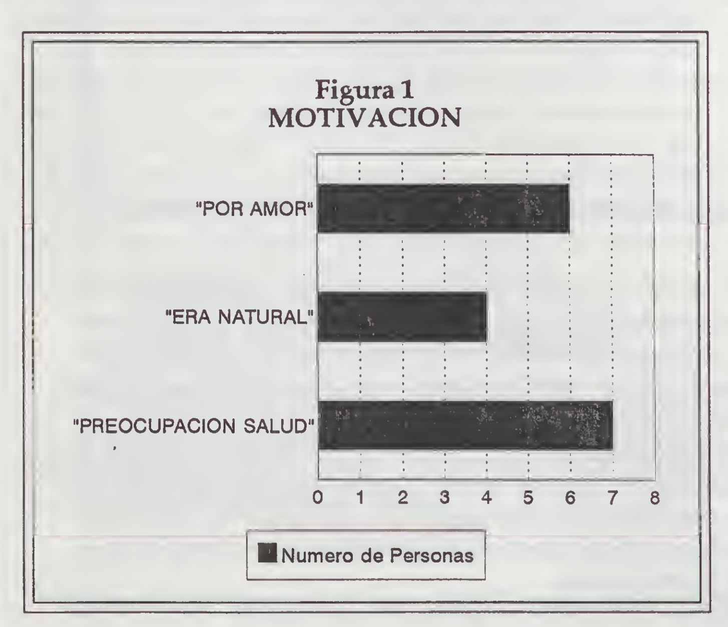


Figura 2
EFECTOS DE LA DONACION
en la relación entre donantes y recipientes

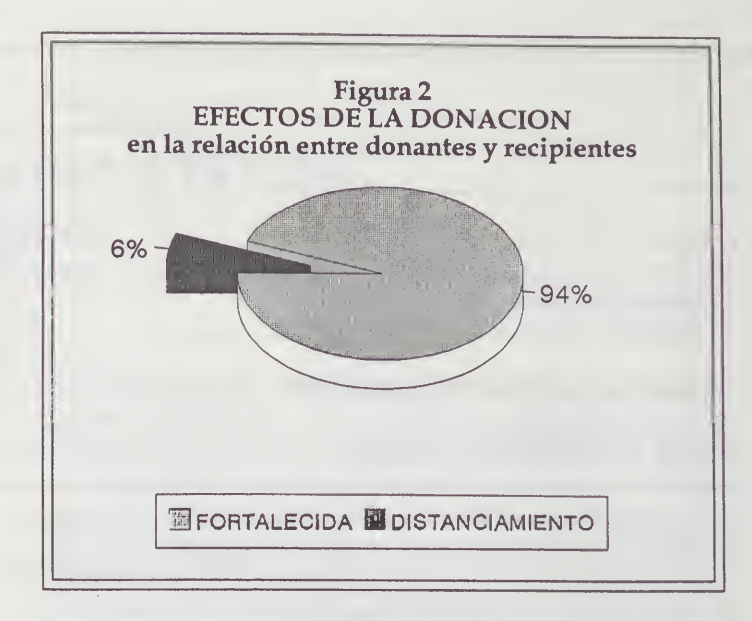
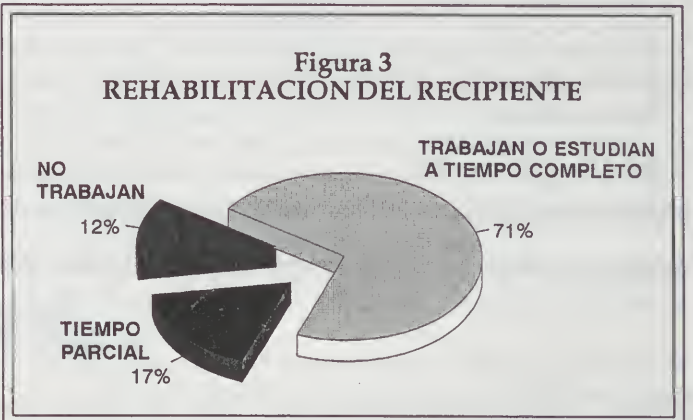


Figura 3
REHABILITACION DEL RECIPIENTE



Discusión

La incidencia de enfermedad renal terminal va en aumento alarmante tanto en Puerto Rico como en el mundo. Sin embargo el número de órganos para trasplante no guarda proporción con este aumento, y peor aun, ha ido disminuyendo en tiempos más recientes (2). Por esta razón la lista de pacientes en espera de riñones cadavéricos va en aumento en Puerto Rico, Estados Unidos y Europa.

Parte de los problemas de donación baja se pueden explicar por factores sociológicos inherentes a nuestras poblaciones latinoamericanas. En estudios previos nuestros demostramos que la proporción de donación en los países latinoamericanos es principalmente de donador vivo relacionado en aproximadamente 65% (3).Sin embargo, en nuestro país hemos estudiado este problema bastante en detalle encontrando que el problema principal no estriba "en la religión" como algunas veces se intenta hacer ver, sino que de hecho la religión usualmente trabaja a favor de nosotros. Así mismo, no es por desconocimiento de la donación ni de los problemas relacionados con enfermedad renal terminal en Puerto Rico. En otro estudio previo (4) demostramos que sobre 85% de las personas entre-

vistadas sabían lo que era trasplante de órganos, lo que era enfermedad renal terminal, cómo se manejaba, y sobre 65% donaría sus órganos. Sin embargo, en la práctica no es así; ¿dónde está ese 65%?

En otros estudios hemos encontrado tres factores adicionales relacionados con la falta de donación en Puerto Rico (5). En primer lugar, la interacción con los intensivos desde el punto de vista del acto de donación no es usualmente y de hecho, su reconocimiento ha sido uno de los factores principales en el éxito de algunos programas de trasplante. Así mismo, el llamado "hospital penetration" de muchas entidades de obtención de órganos en los Estados Unidos tales como Life Link es responsable de su éxito. El segundo factor que trabaja en contra de donación es la respuesta al sufrimiento en el momento de la notificación de la muerte a los familiares. Esta situación se expresa muchísimas veces con reacciones violentas de enajenación a veces rayando en la histeria donde muchísimas veces los dolientes familiares se hacen daño a sí mismos. En ese momento es imposible obtener ningún tipo de comunicación con la familia.

En tercer lugar, la toma de decisiones en los países latinoamericanos y en particular en Puerto Rico se lleva a cabo por muchos miembros de la familia - como si fuera un "comité familiar" - lo cual a veces imposibilita el identificar quién es el próximo en sucesión y a quién se debe abordar. De hecho, en muchas ocasiones es alguien lejano en la familia pero es el que más éxito ha tenido o el que en una posición más alta se visualiza y no el próximo en sucesión. Esto también trabaja mucho en contra de los permisos para donación en trasplante cadavérico.

Desde 1988 estudiamos la posibilidad de donantes vivos no relacionados en nuestro Programa de Trasplante. El aumento alarmante en el número de personas en la lista de espera sirve de base para que muchos familiares por afinidad y no por consanguinidad insistieran en que se considerara a ellos para donación. De hecho, muchos de ellos se sentían con la responsabilidad de hacer algo por su familiar para que éste no falleciera en la lista de espera, no obstante al hecho de que la mortalidad en la lista de espera ha sido limitada(6). Decidimos desarrollar experiencia en esta área para disminuir en algunos casos específicos la espera en diálisis.

Los resultados de sobrevida de recipiente tanto de vida como injerto son comparables con los otros resultados que tenemos de trasplante vivo relacionado en nuestro Programa. Estos a su vez son comparables con el promedio de resultados en los Estados Unidos. La función renal en los pacientes que todavía tienen su riñón es una función buena por lo menos a un año plazo. La tasa de rehabilitación demuestra que hubo beneficio emocional para la mayor parte de los donantes vivos aun en aquellos donde se perdiera el injerto.

Por tanto concluimos que el trasplante de donador vivo no relacionado se puede llevar a cabo con seguridad para el donante, a su vez proveyéndole al recipiente buenos resultados de sobrevida tanto del injerto como de vida. El receptor es rehabilitable ya que la gran mayoría trabaja o estudia a tiempo completo. Este tipo de trasplante provee gran satisfacción para el donador siempre y cuando existan lazos de afinidad y motivación fuertes. A su vez puede ser una solución parcial ante la escasez de órganos.

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Los Trasplantes de Organos ante la Etica Cristiana

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Introducción

Por "trasplante" entendemos la acción médica que inserta en un organismo humano, al que llamaremos "receptor" , una parte de otro organismo, generalmente también humano, al que llamaremos "donante". Las partes trasplantadas pueden variar desde pequeñas zonas de tejidos hasta órganos enteros como el riñón, el corazón o el hígado(1). Este artículo se aproxima a los trasplantes de órganos desde la perspectiva de la ética cristiana, particularmente en la tradición de la teología moral católica.*

El sueño de los trasplantes ha vivido en la fantasía humana desde tiempos remotos. La leyenda hagiográfica medieval atribuye un milagro de trasplante a los santos Cosme y Damián. La famosa Leggenda áurea de Jacobo de Varazze (siglo XIII) relata que los santos Cosme y Damián sustituyeron la pierna gangrenosa de un cristiano con la de un moro recién fallecido (2). No obstante, los trasplantes se han hecho realidad en una fecha comparativamente reciente. El primer trasplante de órganos - un trasplante renal - se efectuó en 1954 (3).

Estamos, pues, ante una cuestión nueva para la tradición ética cristiana. No podemos pretender ir a la Sagrada Escritura o a los antiguos testimonios de la fe para encontrar una respuesta hecha. En este caso, como en la mayor parte de las cuestiones éticas concretas, el cristiano tiene que leer los datos de la nueva situación y empeñarse en una reflexión racional - de una razón, claro está, iluminada por la fe y confiada en la asistencia del Espíritu - para encontrar la verdad ética. Hoy día la mayor parte de las denominaciones cristianas aceptan la licitud moral de los trasplantes, siempre y cuando no se violenten otros principios morales (como el respeto a la vida del donante o la reverencia debida al cuerpo humano, creado por Dios y llamado a la resurrección).

Evaluación ética de los trasplantes en la tradición de la teología moral católica

En la tradición de la teología moral católica se ha dado una evolución en la evaluación ética de los trasplantes de órganos. En un primer momento se dieron reservas con respecto al trasplante de órganos procedentes de donantes vivos.

1. *Reservas*

Estas reservas parten de la compresión de la remoción del órgano como una mutilación del organismo. La *mutilación* se entiende, en sentido amplio, como la privación de una función, ejercida por un órgano. Esta puede ocurrir a través de la ablación del órgano mismo o por medio de una intervención que imposibilita que el órgano en cuestión lleve a cabo sus funciones biológicas propias, como cuando se ligan las trompas o se practica una vasectomía (4)(5). La mutilación se considera ilícita a partir de dos principios éticos tradicionales, tanto en la ética católica como en otras tradiciones morales: *el principio de no maleficencia* (que es el principio fundamental de toda ética) y el *principio de la no disponibilidad del propio cuerpo* (como corolario del principio del respeto a la vida física propia) (6).

Por otra parte la prohibición de la mutilación no ha sido absoluta. De haber sido así, se habría excluido toda intervención quirúrgica, aun para salvar la vida, socavando el mismo bien que se quiere amparar. La legitimidad de la mutilación terapéutica se ha justificado invocando el *principio de totalidad,* uno de los principios técnicos clásicos de la moral médica en la tradición católica. Según este principio, en un todo físico o personal (no en un todo moral como la sociedad) el bien de las partes se subordina al bien del todo. En caso de exigirlo el bien del todo, la parte puede y debe ser sacrificada en su función y hasta en su existencia (7). Así, por ejemplo, un miembro gangrenoso o un útero canceroso debe ser amputado para salvar el organismo.

Esta claro que este principio justifica los trasplantes autoplásticos, pero no los heteroplásticos. Por eso se dio una cierta reserva por parte de algunos moralistas católicos ante los trasplantes heteroplásticos con órganos procedentes de donantes vivos. M. Zalba negó su licitud desde el punto de vista moral en un artículo clásico para la historia de esta discusión (5). Sin embargo la conclusión de Zalba chocaba con el sentido moral cristiano, inspirado en la palabra expresa de la Escritura acerca del primado de la caridad (vea, por ejemplo, Juan 13, 34-35; 15,15; Romanos 13,10, etc.)

2. *Primer intento de solución*

Se intentó reinterpretar el principio de totalidad en clave social. Según esta reinterpretación, se da una

**Para una visión más amplia, en clave interreligiosa, vale la pena ver los artículos de BULKA, NAMIHIRA, SAHIN, SUGUNASIRI y TRIVEDI en Trasplantation Proceedings 1990: 22: 939-949.*

ordenación del individuo al bien del todo social, análoga a la ordenación de los órganos del cuerpo al bien del organismo. Esta ordenación del individuo al bien del todo social justificaría los trasplantes de órganos: el ojo o el riñón de Pedro están también ordenados al bien de Pablo. La noción, insinuada originalmente por A. Vermeersch, fue desarrollada más tarde por otros autores, en particular por B.J. Cunnigham (8) (9).

Esta reinterpretación del principio fue rechazada por Pío XII en 1956 y ha sido rechazada por la teología moral posterior (3) (4) (10). La relación de las partes con el todo es esencialmente distinta en un todo físico, como el cuerpo de una persona, y en un todo moral, como la sociedad. La persona no puede ser reducida a un mero medio para el servicio de la comunidad, porque es siempre un fin en sí misma. La aceptación de la reinterpretación del principio de totalidad para los trasplantes podría abrir la puerta para intervenciones peligrosas por parte de los poderes políticos.

3. *La solución definitiva: el principio de solidaridad*

La teologia moral se vio forzada a buscar otro camino de solución para justificar éticamente el trasplante de órganos, que se encontró en la invocación del *principio de solidaridad (o principio de caridad)*. El principio de solidaridad parte de la socialidad radical de los seres humanos. El ser humano no puede realizarse plenamente como persona sin la comunidad, sin los otros. Por lo tanto, la vida y salud de las personas no es un bien exclusivamente individual. La vida y la salud de Pedro es un bien para Juan y para toda la comunidad humana, a la que ambos pertenecen (6). Podemos decir que existe una *corresponsabilidad* por la salud y la vida de las personas en la sociedad. Esa corresponsabilidad justifica moralmente que Pedro arriesgue su salud y hasta su vida por el bien de Juan o de otro miembro de la sociedad. Esto lo hacemos continuamente en distintas esferas de la vida social. La madre pone en peligro su vida y su salud para dar a luz un hijo, el policía pone en peligro su vida para velar por la seguridad ciudadana, el profesional o el voluntario que atiende a un paciente con una enfermedad contagiosa hace otro tanto.

Como señala E. Chiavacci, la integridad física no es un elemento constitutivo del ser persona, siempre y cuando se conserve la vida física y la integridad psíquica. La renuncia a un órgano o a una función no esencial para mantener la vida física y la integridad psíquica, no impide ni mi supervivencia ni mi realización como ser personal en el mundo, en relación con los otros y con Dios (4). Por el contrario, dicha renuncia, cuando se hace en libertad y por solidaridad, puede potenciar la caridad de mi vida personal, ya que confirma el sentido fundamental de la vida humana en el mundo: ésta encuentra su sentido pleno en la medida en que se convierte en don libre para los demás. Este sentido de la vida como don es, para el cristiano, una verdad indiscutible. Dios nos la ha revelado en la vida, en la muerte y en la resurrección de Jesucristo. Es verdad que el ser humano no puede, desde el punto de vista ético, disponer arbitrariamente de su vida y de su salud. No obstante, siendo un ser autónomo, tiene que disponer de sí mismo, con prudencia y amor, buscando su plena realización como persona en conformidad con el designio salvífico de Dios.

Criteriología ética para gobernar la donación de órganos

a) Cuando el órgano procede de una persona viva

La donación debe ser un acto libre, sin que entren en juego presiones ni coacciones de ninguna índole. Así lo exigen el principio ético de respeto a la autonomía personal y las normas morales que de él se derivan. La donación no puede ser impuesta por el Estado ni por ninguna otra autoridad.

Para garantizar el respeto a la autonomía del donante, pensamos que, en el caso de un donante vivo, se deben respetar siempre los requisitos siguientes:

1) *Verdadero consentimiento informado* - El donante debe ser informado de los riesgos e inconvenientes al igual que de los posibles beneficios y ventajas de la intervención, tanto para sí mismo como para el receptor.

2) *Gratitud de la donación* - Así se garantiza la libertad y la motivación altruista. Hay que evitar a toda costa que la donación de órganos se convierta en una nueva avenida de explotación de los pobres por parte de los ricos. Además, los órganos del cuerpo humano no son meras piezas de recambio con un valor monetario. Por otra parte, se puede compensar al donante por los gastos en los que incurra.

3) *Protección de la vida y de la salud del donante* - La vida y la salud del donante no deben recibir daños sustanciales, que le ocasionen la muerte o que reduzcan significativamente su capacidad para una vida satisfactoria y útil. No sería nunca legítima la donación de órganos indispensables para la vida como el corazón o el hígado, como tampoco sería aceptable la donación de ambos ojos.

4) *Integridad Psíquica* - La integridad psíquica, tanto del donante como del receptor, se deben salvaguardar. Por lo tanto parece que el trasplante del cerebro, aun cuando llegue a ser técnicamente viable, no es éticamente aceptable en los seres humanos.

5) *Fines terapéuticos* - El trasplante solamente es legítimo cuando se lleva a cabo con fines propiamente terapéuticos.

6) *Ultimo recurso* - Algunos autores entienden este requisito de manera estricta: no debe recurrirse al trasplante cuando existen otras alternativas (por ejemplo, no debe hacerse un trasplante de riñón si la vida del paciente se puede prolongar con diálisis). Otros autores, con los que coincidimos, solamente exigen que sea el medio mejor y más seguro.

7) *Esperanza fundada de éxito* - Es obvio que sería

irresponsable someter al donante y al receptor a los riesgos implicados en el trasplante de un órgano cuando la intervención no ofrece esperanzas razonables de éxito (4) (6) (11).

b) Cuando el órgano procede de un cadáver

Desde el punto de vista ético, se debe preferir, siempre que sea posible, el trasplante *ex cadavere.* No tiene sentido someter a una persona a los riesgos y a la disminución que supone la remoción de un órgano cuando está disponible el de un difunto, que puede ofrecer beneficios equivalentes al paciente. Con respecto a la remoción de órganos *ex cadavere* enumeramos dos cuestiones de particular relevancia ética.

1. ***La verificación de la muerte***

No es lícito, por supuesto, adelantar o acelerar el deceso de un paciente para disponer de sus órganos, no importa cuán urgente sea la necesidad del potencial receptor. Este principio debe estar claro y es necesario dejar saber al público que se observará escrupulosamente. Es posible que algunas personas se inhiban de dar directrices adelantadas para que sus órganos se utilicen en trasplantes por temor a que, cuando llegue el momento, se acelere su muerte.

Otra cuestión, que se encuentra en la bibliografía, es la relacionada con la determinación del momento de la muerte: ¿cuándo está el paciente clínicamente muerto, de tal manera que se pueda proceder a la remoción de sus órganos? La determinación del momento de la muerte no cae dentro de la competencia de la filosofía ni de la teología. Estamos ante una cuestión de índole científica y clínica. El consenso científico exige la cesación irreversible de la actividad de todo el cerebro; no sólo de las funciones corticales, sino también de las vegetativas. A partir de este consenso, la ética exige que se verifique la muerte cerebral con todos los criterios clínicos aceptados y con el uso de instrumental técnico apropiado (por ejemplo, el encefalograma plano repetido), antes de proceder a la remoción de órganos.

No hay ninguna dificultad ética, aunque sí psicológica, en mantener un cadáver respirando, con la ayuda de máquinas, para garantizar el buen estado de los órganos que se van a trasplantar. Esta situación no debe prolongarse más allá de lo estrictamente necesario, por dos razones: 1) la dificultad psicológica que puede representar tanto para el personal médico y paramédico como para los familiares del difunto; 2) el respeto debido al cadáver humano, como signo que es de la persona que fue.

2. ***El consentimiento***

Lo ideal es que el consentimiento para el trasplante haya sido expresado por el mismo difunto, cuando todavía estaba en el uso de sus facultades racionales. La voluntad expresa del difunto se debe respetar, tanto si ha decidido donar sus órganos como si ha tomado una decisión en sentido contrario. Se trata de una situación análoga al testamento o a las directrices por adelantado con respecto a las opciones terapéuticas en caso de incompetencia. Se debe honrar la voluntad del difunto como expresión de respeto al derecho a la autodeterminación de la persona que fue y que, aunque ya no está presente, está representada por el cadáver.

El problema se plantea cuando el difunto no ha expresado su voluntad al respecto. ¿Pueden usarse para trasplantes los órganos de un cadáver, cuando desconocemos la voluntad del difunto al respecto? La pregunta no es meramente académica. Es lo que ocurre en la mayor parte de los casos. En varios países de Europa existe la política del *consentimiento presunto o implícito.* La persona se considera como donante si no consta su oposición expresa a la donación. Sin embargo, aquí entra en juego otro elemento que es preciso tomar en cuenta: la familia del difunto. Si hubo un consentimiento expreso por parte de la persona fallecida, éste debe prevalecer por encima de las posibles reticencias de los deudos. El problema se plantea cuando dicho consentimiento expreso no existe y la familia se opone a la remoción de órganos para trasplantes. Sobre este particular encontramos diversidad de opiniones entre los moralistas. Por ejemplo, G. Perico sostiene que el consentimiento de los parientes no es absolutamente necesario. En su opinión, si la comunidad estima que el cuerpo del fenecido es necesario, para socorrer a un ciudadano en peligro de muerte, la necesidad comunitaria debe prevalecer sobre los sentimientos de la familia (1). Otros autores adoptan posiciones más respetuosas de los sentimientos de la familia.

El teólogo español E. López Azpitarte reconoce que los sentimientos de la familia, aun siendo irracionales, merecen respeto y consideración. Muchas personas ven la remoción de un órgano como una falta de aprecio y reverencia al difunto. El clima de aflicción que envuelve a la familia en esos momentos no es el más propicio para impartir una explicación adecuada (11). Sgreccia y sus colaboradores sostienen una posición similar a la de López Azpitarte. Para ellos, el respeto a la voluntad de los sobrevivientes conserva un peso de orden ético. No se puede negar por entero el vínculo de pertenencia afectiva entre el difunto y los familiares que le sobreviven (6). Además, no se debe olvidar que los seres humanos somos seres sociales, formados en buena medida por los ambientes en los que hemos vivido. Hay razones para presumir que la familia, al menos en buena parte de los casos, es portadora de los valores que informaron la vida y las decisiones del difunto (12) (13).

Nos inclinamos a favorecer la segunda opinión. La decisión de la familia inmediata debe ser respetada, especialmente en las circunstancias del deceso, por más que su decisión nos pueda parecer irracional. la solución debe buscarse en campañas de educación masiva a través de los medios de comunicación, en las escuelas y en las iglesias.

Conclusión

La donación de órganos para trasplantes constituye una expresión privilegiada de la solidaridad exigida por la ética cristiana, que nos enseña a entregar la propia persona para dar vida a los demás. La solución a la escasez de donantes de órganos se debe buscar dentro del contexto de la formación de una nueva *cultura de la solidaridad* (14).

Las iglesias cristianas pueden y deben jugar un papel importante en esta campaña, sensibilizando a sus fieles al significado ético y espiritual de la donación de órganos, como servicio a la vida y expresión de la más genuina caridad cristiana.

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Artículos Originales:

Enfermería, Pivote Central de un Programa de Trasplante

Por: Elba Cancel, RN, BSN

Se hace evidente por los otros artículos de este número la complejidad del paciente de trasplante, y lo variado de las diferentes condiciones que lo aquejan en un momento u otro. Aunque se intenta manejar gran parte de la evaluación post operatoria del paciente desde el punto de vista ambulatorio, es inevitable que muchas de las situaciones que ocurren a través del tiempo en estos pacientes se tengan que resolver en el ambiente hospitalizado. Si examinamos en detalle los aspectos preventivos de estos pacientes, lo complejo de la inmunosupresión, las dificultades en diagnóstico y la casuística de complicaciones, tenemos que concluir que la Sala de Trasplante Renal es una sala muy especial, de gran complejidad, y que requiere entrenamiento y características especiales del personal que está a cargo del paciente. En este artículo describiremos el entrenamiento del personal de Enfermería de Trasplante Renal y las funciones que éste lleva a cabo.

La Sala de Trasplante Renal

En un momento dado una sala de trasplante renal típicamente tiene hospitalizados pacientes en evaluación para trasplante de donador vivo, pacientes en evaluación para trasplante de donador cadavérico, donantes vivos en evaluación, pacientes inmediatamente pre trasplante, pacientes inmediatamente post, trasplante y pacientes con complicaciones tales como rechazo por un lado, infecciones por otro, complicaciones óseas, metabólicas, gastrointestinales, cardiovasculares y todas las descritas en artículos anteriores de este Boletín. Así ocurre en nuestra Sala de Trasplante Renal. Nuestra sala complementa la oficina de trasplante, oficina de facultad, oficina de preservación y obtención de órganos, las diferentes salas de hemodiálisis y las otras facilidades hospitalarias destinadas a trasplante renal. Ubicada en el ala norte (ala vieja) del Hospital Auxilio Mutuo consta de 26 camas organizadas en forma de "H", con la estación de enfermeras en el centro y con áreas adicionales de oficina de supervisora, área de preparación de medicamentos, "pantry", salón de conferencia, clínica de inmunosupresión, y las áreas ancilares de cualquier otro tipo de sala. La mayor parte de las habitaciones son privadas por el estado inmunosuprimidos de los recipientes de manera que se pueden utilizar como aislamiento. Cada habitación tiene control individual de aire acondicionado con filtros cambiados periódicamente, y con un tipo de limpieza y aseo especial y diferente al del resto del hospital. Las camas más cercanas a la estación de enfermeras se utilizan para el paciente más gravemente enfermo. Las camas más alejadas se utilizan en un lado para el paciente muy inmunosuprimido por el trasplante o rechazo y en el otro, el paciente que tiene infección.

Educación del personal de enfermería

La mayor parte de las enfermeras son graduadas con bachillerato. Se requiere que reciban adiestramiento y educación especial. Para el personal de enfermería práctica no es requisito el adiestramiento especial, pero todo nuestro personal lo ha tomado. El personal debe ser bilingüe ya que se reciben llamadas al exterior con relación a recuperación de órganos.

La educación en trasplante consiste de un curso provisto por la facultad de trasplante y de nefrología de la institución, con créditos educativos, que suele durar 2 meses, que incluye educación teórica y entrenamiento práctico. Los componentes de esta educación se incluyen en la Tabla I. Como se ilustra en la tabla se requiere un compromiso con estudiar y ciertas destrezas adicionales en áreas que normalmente no son parte del manejo de enfermería de otras salas. La meta es lograr una enfermera o enfermero con destrezas y conocimientos lo suficientemente detallados y precisos para que pueda funcionar como eje del programa con independencia profesional.

Educación Continua

En la disciplina de trasplante de órganos y sobre todo en inmunología ocurren cambios casi continuamente. Por esta razón se estructura a principio de año un programa organizado de educación continua para el personal de enfermería y el cual también conlleva créditos por la Universidad del Sagrado Corazón. Semanalmente se presenta una discusión académica de casos llamadas "Clinical Rounds" Una vez al mes se lleva a cabo un "Journal Club". Una vez al mes se discute un tema de interés por facultad local o invitada.

Sala de Trasplante Renal, Hospital Auxilio Mutuo, Hato Rey, P.R.

Tabla I.
Programa de Educación Personal
Enfermería de Trasplante

I. **Enfermedad Renal**
   A. Fisiología Renal
   B. Enfermedad Renal
   C. Enfermedad Renal Terminal
   D. Sustitución de función renal incluyendo modalidades de diálisis

II. **Selección y Evaluación de Donante-Recipiente**
   A. Candidato a donante
   B. Candidato a recipiente
   C. Evaluación médica y social
   D. Comité de Trasplante

III. **Técnica Operatoria del Trasplante Renal**

IV. **Inmunología**
   A. Inmunología básica
   B. Rechazo
   C. Infecciones
   D. Inmunosupresores: ventajas y complicaciones

V. **Educación al paciente trasplantado**

VI. **Técnicas de Enfermería**
   A. Pre Trasplante
   B. Post Trasplante
   C. Cirugía en el paciente inmunosuprimido
   D. El manual operacional y los protocolos.

Tabla II.
Rol de Enfermería en Trasplante Renal

I. **Antes del trasplante**
   A. Pre trasplante
      Evaluación
      Selección
   B. Educación y Orientación
   C. Recopilación y discusión de laboratorios
   D. Procedimientos

II. **Ingreso del trasplante**
   A. Pre operatorio
      1. Educación
      2. Preparación médica y de enfermería
      3. Inmunosupresión
      4. Sostén emocional
   B. El trasplante
      1. Monitoreo fisiológico continuo
   C. Post trasplante
      1. Monitoreo
      2. Control fisiológico
      3. Inmunosupresión
      4. Educación

III. **Trasplante tardío**
   El paciente de rechazo o de infección es un paciente de manejo crítico. El personal de enfermería participa como se participa en una unidad intermedia o incluso de Intensivo, incluyendo manejo ventilatorio y de fallo múltiple de órganos.

Los temas típicos tienen que ver con aspectos inmunológicos o técnicos de la práctica de trasplante. Esta iniciativa es probablemente única en la práctica rutinaria de enfermería en Puerto Rico.

Participación de Enfermería en Trasplante

Conviene tener en mente que el paciente de trasplante continuará siendo cliente del Programa de Trasplante para siempre. Por esta razón desde el principio se establece un lazo estrecho entre paciente y personal de enfermería. La intervención se inicia con la orientación general del proceso de evaluación y de los medicamentos. Continúa con discusión de los laboratorios.Durante los ingresos del donante también se interviene diariamente en la orientación sobre la donación, siempre manteniendo muy consciente a nobleza del acto que se va a llevar a cabo. Para el ingreso del trasplante se prepara al paciente desde el punto de vista inmunológico, médico y emocional. Después del trasplante se monitoriza durante 48 horas y con el donante por 24 horas por una enfermera que está continuamente presente monitorizando su función renal y la fisiología general. Luego la inmunosupresión y educación. Igual ocurre en los otros ingresos. La Tabla II ilustra el rol de enfermería con el paciente de trasplante.

Conclusión

La naturaleza de los trasplantes de órganos es tal que requiere un compromiso continuo de todo el personal y en especial del personal de enfermería el cual es pivote central de toda la operación médica y de las intervenciones metabólicas e inmunológicas. Se requiere compromiso además en participación activa en los programas educativos al igual que en programas educativos que son fuera de la institución. La existencia de un "regalo de vida" bien sea por un donante vivo o por los familiares de un difunto le añade aspectos sociales y sicológicos adicionales de gran importancia para el paciente y su familia, temas que el personal de enfermería necesita dominar a la perfección para poder orientar y contribuir adecuadamente. El problema de no cumplimiento es grave en Puerto Rico y todo el personal está adiestrado para enfatizar y educar al paciente en esa línea de tanta importancia. Lo imprevisto de complicaciones severas y críticas al igual que el trasplante de órgano cadavérico requieren de la Sala una flexibilidad que no existe en ningún otro lugar y del personal de enfermería un compromiso adicional de participar fuera de hora cuando así lo requiere. La lealtad al paciente y al programa se pone de manifiesto cuando todo el personal responde y participa en el cuidado del paciente durante estas situaciones especiales.

Artículos Originales:

Manejo Urológico del Paciente de Trasplante Renal

Por: Andrés Acosta Otero, M.D.

Evaluación Preoperatoria

El cuidado del sistema urinario del recipiente del trasplante renal comienza mucho antes del acto quirúrgico: es necesario tomar medidas que propicien el buen funcionamiento del sistema al cual se le ha de implantar un riñón que puede producir varios litros de orina al día. En algunos niños en quienes se puede predecir el fallo renal años antes de que a la larga ocurra, la anticipación de la necesidad de trasplante renal debe influir sobre las decisiones quirúrgicas. Particularmente en aquellos pacientes en quienes el deterioro renal comenzó en la infancia o la niñez, las medidas preparatorias pueden incluir la reconstrucción de la vejiga con intestino, el reimplante ureteral, si posible o la excisión de sistemas severamente refluyentes e hidronefróticos, la resección de válvulas uretrales congénitas y otras operaciones.

Con la creciente aceptación de candidatos de mayor edad hay que tratar de resolver problemas como la obstrucción prostática o por estrecheces e infecciones del tracto urinario. Anticipando el uso de agentes inmunodepresores, es prudente en algunos casos donde la probabilidad es mayor, que se investigue para cáncer prostático, vesical, testicular o renal.

El examen sistemático del candidato a recibir un trasplante incluye, además de su evaluación médica rigurosa, varios exámenes de su sistema urinario. Nos interesa la apariencia de sus riñones, y para esto se utiliza sonografía y en caso de duda, pielografía retrógrada o tomografía computarizada, para descartar masas renales, cálculos u otras condiciones que requieran atención antes del trasplante. El paciente se somete a un cistouretrograma con vistas durante la micción. Con este estudio se buscan estrecheces, anomalías vesicales y reflujo vesicoureteral. El reflujo muchas veces requiere nefroureterectomía antes del trasplante.

La cistoscopía no es rutinaria, aunque se está realizando con más frecuencia como resultado del aumento en la edad aceptable para recibir el trasplante. Con la cistoscopia a veces se necesita la biopsia vesical o la uretrotomía endoscópica para estrecheses. Esta consideración de la edad nos impone la necesidad de utilizar el estudio de antígeno prostático, (P.S.A.) y, cuando está indicado, la sonografía y hasta las biopsias prostáticas buscando cáncer.

Urología después del trasplante

La incidencia de complicaciones urológicas en nuestra serie de más de quinientos trasplantes renales compara favorablemente con la experiencia mundial. (1)

Las complicaciones de índole urológica pueden ocurrir relativamente temprano, como sucede con la extravasación urinaria usualmente causada por fallas técnicas de anastomosis. Las obstrucciones uretero-vesicales pueden ocurrir temprano por igual razón. Nuestra incidencia de obstrucción es muy baja al compararla con la literatura. La obstrucción puede ocurrir por fibrosis (Fig. 1), cálculo (Fig. 2) o linfocele (Fig. 3).



Fig. 1 *Pielograma de un trasplante doble. El uréter del riñón superior está obstruido por fibrosis.*

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Fig. 2 *Tomografía de un riñón trasplantado cuyo uréter está obstruido con un cálculo (flecha).*

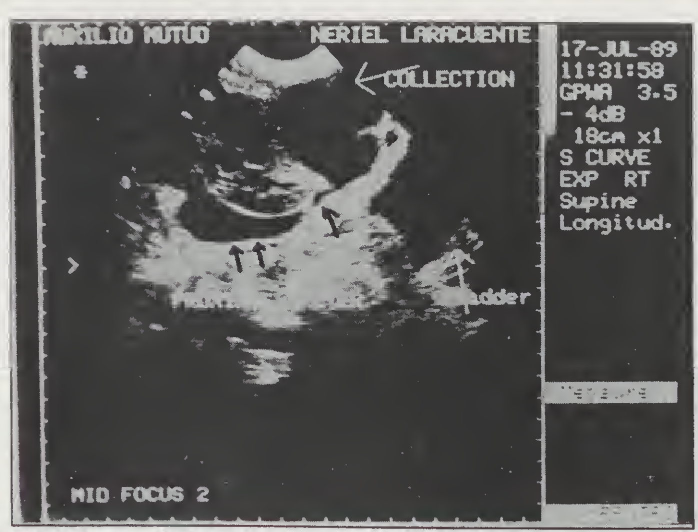


Fig. 3 *Sonografía demostrando un linfocele ("collection") comprimiendo el uréter (flecha) y causando dilatación pelvis renal (doble flecha).*

Tabla I.

Linfocele Sintomático	4%
Extravasación urinaria	1.4%
Obstrucción uréter	1.2%
Necrosis uréter	0.2%
Estenosis arterial	1.6%
Trombosis arterial	0.4%
Trombosis venosa	0.2%
Infección herida	1.2%

Estas complicaciones pueden demorar en manifestarse, como cuando ocurre extravasación de orina por necrosis de uréter secundaria a la interrupción de la circulación de pelvis y uréter probablemente por disección en la región crítica de los vasos pieloureterales al remover el riñón del donante, y aun más tarde, como cuando una fibrosis por rechazo crónico obstruye lentamente al uréter o cuando se forma un cálculo obstructivo (que también presenta como infecciones recurrentes de orina), sobre material de sutura expuesto a la orina. La obstrucción ureteral puede resultar de presión extrínseca, por hematoma temprano o por linfocele más tarde aunque en ambos casos la prevención depende en gran medida de la hemostasia cuidadosa y ligadura escrupulosa de linfáticos. La extravasación urinaria en un paciente inmunosuprimido, especialmente con orina contaminada por la necesidad de usar el catéter de Foley, es un problema que puede resultar en una sepsis fatal en corto plazo. La intervención sin demoras para restablecer la integridad del sistema y el uso prudente de drenaje son las medidas correctas.

La Tabla I resume algunas de nuestras complicaciones urológicas. La incidencia de extravasación es mucho más baja en nuestra serie que en la literatura (2), probablemente por el cuidado meticuloso en el cierre, suturas "absorbibles" delicadas e inertes y la política de nunca dejar drenajes cerca de la anastomosis ureterovesical. El "Foley" se remueve entre uno y tres días post trasplante, excepto en diabéticos, en quienes se puede dejar hasta cuatro días. Después de remover el catéter, se pide al paciente que orine cada hora.

Una fístula uretero-cólica traumática fue manejada exitosamente post trasplante con colostomía, reparación primaria y meses luego, reestablecimiento de la continuidad intestinal (Fig. 4).

Otro factor importante en la prevención y que se relaciona con la técnica operatoria es el reimplante ureterovesical. Las técnicas clásicas de Leadbetter y Politano, Paquin y otros tienen en común la construcción de un túnel submucoso en el trígono vesical. Este túnel submucosa es el recurso anti-reflujo de la operación. Así realizamos nuestros primeros casos. La técnica que hoy empleamos es diferente. Hoy se construye un surco en el detrusor en la cara anterolateral de la vejiga. Este surco de cerca de una pulgada de longitud expone la "mucosa" vesical y luego el uréter se anatomosa a una pequeña apertura en la mucosa en



Fig. 4 *Uretrograma demostrando fístula (flecha) con el recto.*

su extremo distal. Los bordes superficiales del surco en el detrusor se aproximan sobre el uréter que se anastomosó a la mucosa, creándose así el mecanismo anti-reflujo. La ventaja de este reimplante similar al de Lich-Gregoir es que permite usar un segmento de uréter más corto, por tanto, menos susceptible a la falta de circulación y más cómodo para realizar. Ocasionalmente en niños con trastornos de vías urinarias y cirugía previa, reestablecemos la continuidad a conductos intestinales o a ureterostomías previas(3). Además de las complicaciones de origen técnico, hemos visto algunas complicaciones por la necesidad de usar ciclofosfamida (Cytoxan) en algunos pacientes en quienes no se puede utilizar el Imuran. Uno de los pacientes tuvo cistitis hemorrágica tardía y tan severa que dejó de responder a las irrigaciones de alumbre y fue necesaria la irrigación con formalina. El paciente falleció poco después por complicaciones cardiovasculares.

Los recursos diagnósticos que más nos ayudan en la investigación de las complicaciones son los niveles séricos de creatinina y el urinálisis y cultivo de orina (principalmente), los estudios dinámicos de función y excreción renal con radioisótopos, la sonografía, muy ocasionalmente los pielogramas endovenosos o la arteriografía en sus variedades modernas y entre las urológicas la cistoscopía, el cistograma y el pielograma retrógrado.

Las llamadas técnicas endourológicas han adelantado el tratamiento de las complicaciones urológicas del trasplante renal (4). Hoy contamos con catéteres ureterales de material poco reactivo, para drenaje a largo plazo, aunque en pacientes trasplantados se cambian a intervalos más cortos. En ocasiones el uso de uno de estos puede corregir una obstrucción o una leve extravasación urinaria, aunque nuestra política es el manejo agresivo y definitivo de la extravasación.Cuando una rara anastomosis ureteropélvica o ureteroureteral se hace necesaria, estos catéteres son esenciales. Se desconoce la verdadera incidencia del reflujo vesicouteteral post-trasplante en muchas series, incluyendo la nuestra, porque mientras el paciente goce de buena salud y sus parámetros críticos se mantengan normales, preferimos no invadir su sistema urinario estéril para realizar el estudio potencialmente contaminante de cistouretrograma miccional. En la literatura no se destaca el reflujo vesicoureteral post trasplante como un factor común o grave.

En resumen, la atención a los detalles urológicos en el complejo tratamiento de un recipiente de trasplante renal es una responsabilidad que puede comenzar desde la infancia del enfermo y que continúa durante toda su vida. El mejor aliado en esta constante vigilancia es el paciente bien orientado.

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Artículos Originales:

Manejo Anestésico del Paciente Anéfrico

Por: Miguel Eliza, MD

El fallo renal crónico produce una amplia variedad de condiciones patofisiológicas. Un mejor conocimiento de estas anormalidades permite que el manejo anestésico sea más exitoso y de esta manera el procedimiento quirúrgico tendrá un mejor pronóstico.

A medida que el filtrado glomenular disminuye, las propiedades de concentración y dilución del riñón se van afectando severamente. Alteraciones electrolíticas, hematológicas y ácido-base son comunes. La pédida de aproximadamente 95% de las nefronas funcionantes de lugar al síndrome urémico, el cual requiere diálisis.

El síndrome urémico presenta una gran variedad de alteraciones incluyendo acidosis metabólica, disfunción de plaquetas, disturbios electrolíticos, sobrecarga de líquidos, anormalidades del sistema nervioso central y desórdenes gastrointestinales, entre otros.

Evaluación pre-operatoria

La construcción de accesos vasculares para diálisis son bien toleradas por estos pacientes y su mortalidad es baja, independientemente del tipo de anestesia que se use. Por el contrario, los procedimientos invasivos, bien sea con anestesia general o regional, están asociados con una mortalidad perioperatoria mayor, que procedimientos análogos o similares en pacientes con función renal normal.

Mientras más severo el insulto quirúrgico, más probabilidades de complicaciones perioperatorias, y de ahí la importancia de identificar preoperatoriamente los factores de riesgo en estos pacientes. La selección de técnicas de monitores y de anestesia dependen de estos factores. Mencionaremos a continuación los cambios más característicos de los pacientes anéfricos y algunas recomendaciones perioperatorias.

Anemia

Hematocritos por debajo de 30% son comúnmente encontrados en los pacientes anéfricos. La anemia es normocítica-normocrónica debido a producción inadecuada de eritropoyetina. Hematocritos de 25-30% son bien tolerados por estos pacientes, por lo que no se recomienda que sean transfundidos preoperatoriamente.

Coagulopatías

Una ligera prolongación en el tiempo de sangrado (bleeding-time) es la coagulopatía más frecuente en estos pacientes, siendo una disfunción plaquetaria el factor más importante de esta alteración. El número de plaquetas puede estar levemente disminuido, pero el tiempo de protombina y de tromboplastina (PI y PTT) deben aparecer normales. Cualquier variación más allá de las alteraciones ya mencionadas en los parámetros de coagulación, deben ser evaluados con detenimiento.

En casos donde el paciente tiene historial de sangrado excesivo o el procedimiento a efectuarse es de estas características, se puede considerar el uso de Desmopressin.

La diálisis veinticuatro horas o antes de la cirugía mejora la disfunción plaquetaria causada por la uremia. El uso de agentes citoprotectores de la mucosa gástrica (antiácidos, bloqueantes histamínicos) disminuye la incidencia de úlceras de "stress" en el período perioperatorio.

Alteraciones Cardiovasculares

Aun fuera del marco perioperatorio, la enfermedad isquémica del corazón es la causa de muerte más frecuente en pacientes anéfricos. Esto hace imprescindible una minuciosa evaluación cardiovascular, con especial atención a los cambios en el historial clínico del pasado con relación al presente. Esta data nos permitirá seleccionar objetivamente los estudios y pruebas cardiovasculares necesarias, así como la complejidad del monitoreo, al que debe ser sometido el paciente antes de la operación.

Como en cualquier paciente quirúrgico, el mantenimiento del volumen intravascular es mandatorio. El uso de normal salina y/o soluciones libres de potasio, como mantenimiento y reemplazo, antes y durante la cirugía, debe ser adecuado, de acuerdo a los cambios ocasionados por los distintos tipos de diálisis.

Alteraciones Electrólicas y Metabólicas

La hiperkalemia es la condición peligrosa más frecuentemente encontrada, perioperatoriamente, en los pacientes anéfricos. La diálisis es la forma más efectiva

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de manejar esta hiperkalemia perioperatoria. En algunos pacientes se encuentra elevado el potasio sérico, aun después de haber sido dializado menos de veinticuatro horas antes. En estos casos puede ser necesaria una segunda diálisis o el uso de otras medidas para bajar el potasio sérico.

Conjuntamente con la hiperkalemia también se encuentran otras alteraciones como hipermagnesemia e hipocalcemia que de no ser marcadas no producen alteraciones en el periodo perioperatorio. La acidosis metabólica es un hallazgo normal, pero cuando el bicarbonato sérico se encuentra por debajo de 15meq/l, se debe investigar la posibilidad de una ketoacidosis o una acidosis láctica.

Infecciones

Las infecciones son una causa de muerte frecuente en los pacientes anéfricos que necesitan anestesia y cirugía. La suceptibilidad a infecciones bacterianas son producidas por malnutrición proteica, anergia cutánea y disfunción de neutrofilos, monocitos y macrófagos. Se debe por tanto, proteger al paciente usando medidas asépticas. El personal que interviene con él, debe usar medidas protectivas. La hepatitis infecciosa sigue siendo un problema común en los pacientes de diálisis.

Selección de Agentes Anestésicos

El uso de fármacos en el paciente anéfrico para cirugía debe de considerar la pérdida de los mecanismos renales en la excreción de drogas, las alteraciones bioquímicas de la uremia en la biodisponibilidad de las drogas y los efectos de la diálisis sobre ellas en la salida del organismo. No existe un régimen anestésico ideal que se pueda aplicar a los pacientes anéfricos.

Agentes Intravenosos

Drogas de gran afinidad a las proteínas pueden tener efectos prolongados y exagerados, pues el fallo renal reduce esta afinidad dejando más cantidad de droga libre.

La acidemia, comúnmente en los pacientes anéfricos, permite también más cantidad de droga libre a ser utilizada por los tejidos, particularmente por el cerebro, además de que la uremia altera la barrera hemato-encefálica aumentando la sensibilidad a algunos inductores intravenosos tales como el tiopental. Las benzodiazepinas si son usadas como agentes inductores no necesitan mucho ajuste.

La depresión respiratoria ocasionada por los apiáceos puede prolongarse en los pacientes anéfricos tal vez por lo debilitante de su condición, a parte de esto no necesitan mayores ajustes.

Las benzodiazepinas, barbitúricos y narcóticos pueden ser utilizados con seguridad, si son administradas en incremento de pequeñas dosis hasta lograr el efecto deseado y bajo observación directa.

Anestésicos Inhalantes

Los agentes inhalantes ofrecen algunas ventajas en los pacientes anéfricos, ya que su eliminación no depende de una función renal adecuada. Además, se pueden administrar sin óxido nitroso, lo que permite el uso de grandes concentraciones de oxígeno inspirado en aquellos que lo necesitan. Estos agentes son útiles para controlar la hipertensión intraoperatoria y reducen la cantidad de relajantes musculares necesaria para una relajación adecuada.

La depresión cardíaca producida por estos agentes es la preocupación mayor, pero ésta puede disminuirse con el uso combinado de opiáceos. El uso combinado de agentes inhalantes con opiáceos permite usar menor cantidad de narcóticos disminuyendo así, los efectos no deseados producidos por los narcóticos y que son mayormente dependiente de altas dosis.

Relajantes Musculares

El aumento de potasio sérico que se produce con la administración de succinilcolina es igual en pacientes normales que en pacientes anéfricos y es del orden de 0.5 - 0.7meq/l. No obstante en el caso de los pacientes anéfricos este aumento puede dar lugar a arritmias cardíacas en pacientes con el potasio elevado o en el límite alto de lo normal.

El Atracurium es el relajante neuromuscular de elección porque su eliminación no depende de la función renal. La eliminación de Hoffman y la hidrólisis de ésteres son las responsables de su desaparición del organismo.

Otros relajantes musculares no depolarizantes de acción larga o intermedia no están totalmente contraindicados, siempre que se haga un ajuste de la dosis, se administre lentamente para conseguir el nivel de relajación adecuado y recuperación a través del monitos de relajación.

La neostigmina, piridostigmina y el edrophonio son tres agentes anticolinesterasa comúnmente utilizados para reversión de los relajantes musculares. Debido a que los tres agentes se eliminan mayormente por el riñón, el fallo renal prolonga su duración de manera marcada, de forma tal que el fenómeno de recurarización es rara vez encontrado.

Manejo Anestésico

Los pacientes en hemodiálisis programados para cirugía electiva deben ser dializados en el período alrededor de las venticuatro horas antes de la cirugía.

Los medicamentos utilizados para el control de sus enfermedades, principalmente cardiovasculares, deben ser continuados hasta la mañana de su cirugía. merece especial atención aquellos pacientes que estén usando digitálicos por los efectos de una intoxicación que es más frecuente en estos pacientes.

La inducción de la anestesia y entubación se pueden

llevar a cabo con los agentes ya previamente discutidos y con las precauciones características de ellos.

El mantenimiento de la anestesia se logra a través del uso combinado de óxido nitroso, inhalantes potentes, opiáceos y relajantes musculares, con las características ya discutidas.

Una meticulosa atención se debe dar al manejo de la ventilación y reemplazo de fluidos intravenosos. El paciente se debe mantener normocápnico, pues la alkalosis respiratoria afecta adversamente la posición de la curva de disociación de la oxihemoglobina, mientras que una acidosis respiratoria puede dar lugar a un aumento en los niveles de potasio sérico.

Los pacientes dependientes de diálisis tienen un margen pequeño de seguridad entre el déficit y el exceso de líquidos. El medir la presión venosa central es de gran utilidad en el reemplazo de fluidos.

Los bloqueos del plexo braquial en sus diferentes formas son útiles para la construcción de accesos vasculares en las extremidades superiores. Las anestesias regionales son útiles y bastante seguras en este tipo de pacientes. La existencia de pruebas de coagulación adecuadas y la ausencia de neuropatías existentes en cualquiera de sus etapas, son circunstancias a tomar en consideración antes de una anestesia regional.

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Artículos Originales:

Clinical and Experimental Immunosuppression

Por: José A. Castillo Lugo, M.D.

Immunosuppression in the clinical setting has to be designed to create a state of tolerance by manipulating the immune system to prevent damage to the transplanted organ while avoiding adverse situations in the recipient; that is, prevention of the rejection process while avoiding intolerable medication side effects, infections or neoplasia.

Immunosuppressive protocols have emerged since 1951 when David Hume reported a series of cadaveric kidney transplants using small doses of adrenocorticotropic hormone and cortisone (1). In 1958, total lymphoid irradiation (TLI) was used by Murray in Boston and by Hamburger in Paris to suppress rejection in man, however, rejection was not prevented and the development of bone marrow toxicity made TLI an unacceptable approach. Later, TLI was modified using lower doses of radiation, achieving long term success.

The 1960's were a turning point in the field of transplantation. Methods of antibody testing were developed by D.B. Amos and Paul Terazaki allowing the detection of preformed antibodies responsible for hyperacute rejections. Strong immunosuppressive medications, such as antilymphocytic serum and azathioprine (AZA), were introduced in combination with steroids(2).

In the mid-70's, cyclosporine (Csa) was discovered proving to be effective when conbined with AZA and steroids, thus, becoming in the mid-80's the cornerstone therapy for solid organ transplantation.

Pre-Cyclosporine Era

Prior to the introduction of Csa in the clinical setting, AZA in combination with steroids was the main immunosuppressive protocol for both cadaveric and living related kidney transplants achieving 1 year graft survival rates of 73% and 89%, respectively. This protocol was modified by the intoduction of donor specific transfusions (DST) based on reports published by Opelz in the early 70's (3). Later in 1980, Salvatierra reported an improved 1 year graft survival in a series of LRD transplant with reactive Mixed Lymphocyte Culture (MLC) between donor and recipient in comparison to those who did not receive DST (4). The price paid for this improvement was a sensitization rate of 30% which was decreased to 6-10% when Anderson introduced concommitant treatment of AZA and DST (5).

With the introduction of Csa, identical 1 year graft survival ocurred in comparison with DST. The risks of viral infections as well as high sensitization rates, transfusion reactions and increase costs in the preparation of the recipient, forced the institutions to abandon the DST protocol.

Cyclosporine Era

Csa has been used as monotherapy, double therapy (Csa + AZA or Csa + Prednosine) or triple therapy (Csa + AZA + Prednisone). The Cardiff group reported equivalent 1 and 5 year graft survival when comparing Csa monotherapy, Csa + Prednisone, Csa + AZA, and triple therapy (6). Also, they found an increased incidence of rejection with Csa monotherapy and increased incidence of infections and malignancy with triple therapy. In a prospective study using double therapy (Csa + Prednisone) vs. triple therapy in cadaveric kidney transplant, Brinker et al, found equivalent results for graft and patient survival, serum creatinene and 125-I-iothalamate clearance(7).

The main controversy with the use of Csa is the use of induction with polyclonal or monoclonal immunoglobulins. Induction is used to maintain an immunosuppressed state while delaying the introduction of Csa in the early post-transplant period when the transplanted organ is susceptible to the effects of cold ischemia and immunologic injury. Usually Csa is held until the 3rd or 4th post-transplant day. The two immunolobulins in current clinical use are the anti-thymocytic globulin (ATG) and OKT3. Previously the antilymphocytic globulin (ALG) was in use but is no longer commercially available.

Some studies support the use of induction while others do not find any benefit. Norman et al, in a study comprising more than 215 cadaveric kidney transplants, found that those who received OKT3 had fewer rejection episodes, longer time to initial rejection, and a better 2 year graft survival rate (8). However, Cecka et al, in an analysis of nearly 30,000 patients reported to the UNOS Scientific Renal Tansplant Registry found similar 1 year graft survival rates irrespective of the use of OKT3 (9). However, there appears to be some benefit in patients with delayed graft function or in patients receiving a second transplant. It has been suggested that black patients receiving a second transplant may have a 20% improvement in the 1 year graft survival(10).

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Steroid Withdrawal

The use of steroids in clinical transplantation is associated with unwanted side effects and significant morbidity. Some protocols have been designed to eliminate steroids from the immunosuppressive regimen. Factors that may adversely affect such withdrawal are black race, donor-recipient mismatch, elevated serum creatinine and a recent acute rejection episode (11). If steroids are going to be discontinued, AZA should be continued and Csa levels should be kept within therapeutic levels. Recipients of HLA identical or 1-haplotype mismatch LRD may be suitable for steroid withdrawal.

New Immunosuppressive Medications

FK506

FK506, like Csa, inhibits the interleukin-2 (Il-2) production. Preliminary results of a multicenter trial comparing FK506 vs. Csa based immunosuppression in cadaveric kidney transplants suggests that the incidence of acute rejection may be less with FK506, though toxicity may be greater (12). FK506 has been reported to reserve rejection in 70% of patients with persistent acute cellular rejection while on Csa based therapy (13).

Although FK506 induces renal vasoconstriction, it induces less systemic vasoconstriction and hence, less hypertension (14). The pathologic spectrum of toxicity is similar to that of Csa producing interstitial fibrosis, tubular vacuolization, glomerular thrombosis, and a TTP like picture.

FK506 may offer an alternative for those patients with poor experience while on Csa based therapy, refractory rejection or rescue therapy (12).

Mycophenolate Mofetil

Mycophenolate Mofetil (MM) is a potent inhibitor in the metabolism of guanosine nucleotides, important in DNA replication. It impairs the proliferation of B and T lymphocytes. Other rapidly dividing cell types are spared because they have a salvage pathway for the synthesis of such nucleotides. Antibody formation by B cells can also be inhibited.

Preliminary results from early studies in kidney transplant patients with steroid or OKT3 resistant rejection, suggest that the addition of MM appears to reduce the number and incidence of acute rejections and to reverse ongoing rejections (15).

Three important multicenter clinical trials involving kidney transplants are in progress. In the refractory Rejection Study, patients are randomized to receive either pulse steroids or MM. The first Acute Rejection Study involves recipients of a first cadaveric transplant who are suffering their first biopsy proven rejection. They are randomized to recive pulse steroids with the addition of either MM or AZA. This is a double blind placebo controlled study. The third study, the Prevention Study, involves approximately 500 patients, recipients of a first cadaveric transplant. All of them must receive a standardized induction protocol with the addition of either MM in a dose of 1500 mg b.i.d. or AZA. Patients will be followed for approximately 3 years. This study will determine if the addition of MM reduces the incidence of acute rejection, improves graft outcomes, and delays the development of chronic rejection.

Brequinar Sodium

Brequinar Sodium was originally developed as an antitumor agent. Its immunosuppressive action is believed to be due to the inhibition of T cell proliferation, inhibition of Il-2 and Il-2 receptor expression (16).

Rapamycin

Rapamycin has stimulatory and inhibitory effects acting simultaneously within the same B and T cells (17). When used alone, it has demonstrated to be as potent as triple therapy in animal studies (18). Toxicity profile and clinical effectiveness are awaiting.

New Csa Analogs and Monoclonal Antibodies

Two new Csa analogs have been tested in order to find an efficacious successor for Csa but with less toxicity profile. Cyclosporine G (CsG) is the most promising one with similar results in term of graft and patient survival then with Csa but with less nephrotoxicity (19).

New monoclonal antibodies have been under study. BMA 031 has been effective in the reversal of steroid resistant rejection (20). Other monoclonal antibodies under study includes OKT4A, T10B9, LFA-1, and Anti-ICAM directed against adhesion molecules.

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Artículos Originales:

Resultados del Embarazo en Pacientes Trasplantadas con y sin Terapia de Ciclosporina

Por: Zulma González, Emilio Jiménez, E. Ramos Umpierre, A. Ramos Barroso

Es conocido que el trasplante renal y la inmunosupresión pueden ser factores de riesgo durante un embarazo[1]. Igualmente el embarazo puede deteriorar la función renal en algunos pacientes con condiciones renales crónicas y en el paciente trasplantado. En el pasado hemos escrito sobre este tema[2] y dada la fertilidad de nuestros países hispanos nos interesó siempre nuestra casuística, sobre todo desde el punto de vista de poder ofrecer la consultoría y consejería necesaria a nuestras pacientes después de un trasplante renal. El motivo de este estudio fue establecer si existía alguna diferencia en los resultados del embarazo en mujeres trasplantadas recibiendo ciclosporina o inmunosupresión convencional, y para este fin revisamos los expedientes de nuestras pacientes con embarazo post-trasplante.

Materiales y Métodos

Este es un estudio retrospectivo de los expedientes de los pacientes del Programa de Trasplante de Puerto Rico, que al momento del estudio había realizado 500 trasplantes, 64% de estos siendo hombres y 36% mujeres. Sesenta y un porciento recibieron un riñón de un donante vivo relacionado, 4% de un donante vivo no relacionado y 34% de un donante cadavérico, y 4 recibieron un autotrasplante después de practicarle cirugía reparativa extracorpórea. De las mujeres trasplantadas 64% había recibido un riñón de donador vivo y 34% de donador cadavérico. Ochenta y cinco mujeres (47%) estaban entre las edades de 12-45 años y 53% en otras edades.

Buscamos en los expedientes y en el análisis clínico factores demográficos comparables, progreso del embarazo, período de gestación, y la condición del bebé. La función renal antes, durante y después del embarazo también fue estudiada.

Terapia convencional significa el uso de prednisona y azatioprina de mantenimiento, con suero antilinfocítico policlonal o anti-CD3 monoclonal para inducción o rechazo. Terapia con ciclosporina significa prednisona, azatioprina y ciclosporina crónicamente. Las dosis y esquemas han sido publicados en el pasado.

Resultados

Quince pacientes mujeres tuvieron un embarazo post trasplante de las cuales 13 decidieron continuar con su embarazo, seis de ellas estaban en terapia convencional y siete en ciclosporina (P=NS). La Tabla I bosqueja algunos factores demográficos en cada uno de los grupos, tales como la edad materna y el tiempo entre el trasplante y embarazo los cuales eran comparables. Aunque la creatinina pre embarazo era mayor para los pacientes usando ciclosporina, esa diferencia no fue significativa estadísticamente.

Tabla I. Demografía

	Ciclosporina	Convencional	P
Edad Materna	26 años	28.3 años	NS
Tiempo entre trasplante y embarazo	34.13 meses	40.8 meses	NS
Inmunosupresor usado	60%	40%	NS
Creatinina Pre embarazo	1.8 mg/dl	0.93 mg/dl	NS

Probablemente debido a los números limitados, algunos parámetros importantes no fueron significativos (Tabla II), aunque se nota una tendencia mayor a número de prematuros, mayor número de rechazos durante el embarazo, y una creatinina post-embarazo mayor en pacientes con ciclosporina.

Tabla II. Parámetros no Significativos Estadísticamente

	CSA	Convencional
# Prematuros	7	3
# Abortos	1	0
Período Gestación	35.5 semanas	38.5 semanas
Creatinina Post embarazo	2.07 mg/dl	1.01 mg/dl
# Rechazos durante el embarazo	2	0

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Sin embargo, sí se demostraron diferencias significativas entre ambos grupos en parámetros de importancia (Tabla III). Los bebés nacidos de pacientes en ciclosporina tenía menor peso y eran más pequeños para la edad gestacional. Así mismo, la incidencia de rechazo después del embarazo fue más alta en pacientes con ciclosporina al igual que el uso de anti-hipertensivos.

Tabla III.
Parámetros Significativamente Diferentes

	CSA	Convencional	P
Peso bebé (lb.)	4.96	6.58	0.035
Bebés pequeños para edad gestacional	4	0	0.005
Uso Anti-Hipertensivos	7	2	0.012
# Rechazos después del embarazo	5	0	0.005

Comentario

Los pacientes en ciclosporina demostraron una mayor incidencia de deterioro en su función renal después del embarazo. Esto fue estadísticamente significativo. Tuvieron mayor número de rechazos, una creatinina más alta e incluso una paciente perdió su riñón. No estamos completamente seguros si hay casualidad envuelta pero ciertamente hay una asociación en esta situación. El efecto de la hipertensión y del número de anti-hipertensivos puede ser un factor de mayor riesgo. De hecho, solo vimos natimuertos en pacientes con hipertensión descontrolada. Así mismo, el peso y madurez del bebé se vieron afectados por el tipo de inmunosupresión. Hemos repasado literatura extensamente sobre el tema[2] y se señalan como factores importantes el cumplimiento, la presencia de rechazo, y el tiempo entre el trasplante y el embarazo. El número y tipo de inmunosupresores no ha sido resaltado demasiado en la literatura aunque los informes de los registros internacionales del embarazo sugieran alguna asociación. La contestación final a este problema ocurrirá en los próximos años con el nuevo Registro de Embarazos desarrollado en Filadelfia por el Dr. Armenti.

El cuido obstétrico es esencial. El manejo de la hipertensión, el monitoreo de la función renal, el control del peso y de la dieta son de gran importancia. Así lo ilustra el embarazo y parto exitoso de una de nuestras pacientes trasplantadas quien logró trillizos viables aun cuando fueron prematuros[3]. Creemos que el control de la presión y el seguimiento cuidadoso de la función renal y los niveles de ciclosporina son de especial importancia en aquellas pacientes con embarazo que se encuentren en ciclosporina. A nivel de clínica y de consejería, se debe hacer incapié a la paciente y su familia de que existe riesgo al riñón trasplantado sobre todo en las personas que comienzan con una función renal comprometida. Así mismo, se les enfatiza la importancia del seguimiento cercano, el cumplimiento con el régimen médico, y sobre todo el control de la presión arterial. Sólo así se puede realizar a su máximo potencial este importante beneficio del trasplante renal.

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El Rol Crucial de la Educación al Paciente de Trasplante

Por: Edgardo Zayas, M.D.

El recibir un trasplante conlleva un gran reto para el paciente, y para el equipo de salud, además de la inversión de extraordinarios recursos humanos y económicos. La meta de trasplante es tener un paciente que pueda llevar una vida activa y lograr su rehabilitación máxima. Hay que tomar en consideración que nuestro paciente dejó de trabajar con una condición que lo confina a una máquina por 3 a 4 horas diarias por 3 días a la semana (hemodiálisis), o a varios cambios de soluciones al día (diálisis peritoneal) y esto es un factor importante por su incapacidad al trabajo. El trasplantado tiene que hacerse unos laboratorios tres veces a la semana y verse en la clínica periódicamente, pero no está tan atado. Ventajoso es el hecho que según va pasando el tiempo y mejorando su condición, la frecuencia de los laboratorios y de las hospitalizaciones van decreciendo, lo que hace sea viable el poder ajustarse a su trabajo nuevamente. Cuando el trabajo que efectuaba antes de estar en fallo renal era un trabajo que no pueda efectuarlo (trabajos pesados con exposición al sol, por ejemplo) existe la ayuda de rehabilitación vocacional que es de gran ayuda para nuestra población de pacientes.

Trasplante renal es una forma de tratamiento exitosa. Nuestros resultados son comparativos con el promedio de los obtenidos en la nación americana. La mejoría local y nacional se debe principalmente a los grandes adelantos en la inmunosupresión y el manejo de estos pacientes, al igual que la comprensión más clara de los eventos inmunológicos. Aunque las drogas que se utilizan presentan muchos efectos secundarios, la mayoría de ellos está relacionada a dosis y con los debidos ajustes éstos mejoran. El uso de las drogas inmunosupresoras requiere una vida sin vicios, con buena higiene y sobre todo el cuidarse de las infecciones.

Abordaje Educativo General

Uno de los factores más importantes es el cuidarse de no contraer infecciones, poder identificarlas temprano cuando ocurren, y comunicarnos inmediatamente cualquier signo o síntoma de infección. Para nosotros el tener influenza, gripe o algún síndrome viral es algo común, pero para un paciente trasplantado inmunosuprimido, podría significar el rechazo del órgano o comprometer su vida. Lamentablemente, el paciente trasplantado tiene una mayor incidencia de cáncer, y requiere una evaluación más minuciosa y alerta. Otro aspecto al que se le da mucha importancia es la identificación de los signos y síntomas de rechazo, el otro lado de la moneda inmunológica:

- fiebre
- disminución en la frecuencia urinaria
- aumento de peso
- aumento en presión arterial
- malestar general
- dolor en área del riñón trasplantado o riñón duro o grande

El detectar a tiempo estos síntomas y signos permite una rápida intervención de parte de nuestros médicos y evitar la posibilidad de un rechazo; por tanto los pacientes deben prestar especial atención a esta sintomatología. Otra de las situaciones con las que cada día nos enfrentamos es el pobre cumplimiento. En el año 1988 perdimos unos 12 riñones por problemas de pobre cumplimiento (1). Por esta razón nos enfrascamos día a día en el seguimiento de los pacientes pero muy especialmente en todos aquellos que han sido detectados con este grave problema. El mero hecho de tener historial de pobre cumplimiento no contraindica el trasplante, pero nos alerta para darles educación desde el principio y proveerles seguimiento más de cerca y por todo el equipo multidisciplinario de salud. En especial, la trabajadora social de trasplante los evalúa aun más de cerca, junto con el sicólogo y de ser necesario, con el siquiatra. Nuestra responsabilidad como Programa es velar que todos nuestros pacientes entiendan esta situación y nos den la voz de alarma para poder ayudarles temprano y bien. Así que nuestro abordaje general se basa en establecer consciencia, fomentar responsabilidad y anticipar y evitar el no cumplimiento. En este contexto, el paciente recibe un "Contrato de Trasplante" el cual se le lee y enfatiza (cuadro I). En este contexto se introduce al paciente al resto del personal de la oficina, y en especial a las secretarias de Trasplante ya que son las interfase con el paciente y en muchas ocasiones se desarrolla una comunicación excelente.

Educación Específica

A. DROGAS INMUNOSUPRESORAS

Estas se utilizan para evitar el rechazo de trasplante. Utilizamos hoy la llamada "terapia triple":

Programa de Trasplante de Puerto Rico, Hospital Auxilio Mutuo, Hato Rey, P.R.

CUADRO I
TU CONTRATO CON TRASPLANTE

EL PROGRAMA DE TRASPLANTE TE PROMETE

1. Proveerte un servicio de alta calidad.
2. Estar accesibles para tí 24 horas al día.
3. Implantar técnicas y terapias nuevas y modernas según se vayan descubriendo.
4. Contribuir con adelantos científicos y profesionales que surjan de nuestras investigaciones.

TU PROMETES A CAMBIO:

1. Tomar los medicamentos que évitan rechazo.
2. Tomar las medicinas de la presión.
3. Mantener buen peso, buena alimentación.
4. Asistir a la clínica y laboratorios regularmente.
5. Consultar cualquier síntoma:
   Conocer los signos de peligro.
6. Confiar en el consejo del equipo de salud.

"...Porque, ¿Quién me dará de comer mejor que yo, y quién podrá cuidarme mejor que yo?"

Eclesiastés 2:25

Prednisona, Ciclosporina e Imuran o Citoxan. Las ventajas de esta terapia es que se obtiene un efecto sinérgico con dosis menores; y así disminuyan también los efectos secundarios. Algunos de los efectos secundarios que exponemos al paciente son los siguientes:

1. Prednisona
   - cambios en apariencia física
   - aumento de apetito
   - susceptibilidad a las infecciones
   - acidez estomacal, que aumenta riesgos a desarrollar úlceras
   - retrasa cicatrización de las heridas
   - degeneración ósea
   - diabetes por esteroides

2. Ciclosporina
   - aumento presión arterial
   - amento vellos faciales
   - aumento de potasio sérico
   - temblores
   - aumento de peso
   - dolor en los huesos
   - hiperplasia de encías
   - toxicidad hepática
   - toxicidad renal*

**Toxicidad renal puede crear confusión en el diagnóstico de rechazo.*

3. Imuran (Azatioprina)
   - susceptibilidad a infecciones
   - síndrome tipo hepatitis
   - depresión médula ósea

4. Cytoxan
   - pérdida del cabello
   - susceptibilidad a infecciones

5. FK 506
   - toxicidad hepática
   - neurotoxicidad
   - nefrotoxicidad
   - trastornos de los lípidos

B. OTROS MEDICAMENTOS

1. antiácidos - para evitar úlceras
2. sulfamethoxazole - trimethoprim para profilaxis contra Pneumocystis carinii
3. penicilina en pacientes esplenectomizados
4. antihipertensivos
5. laxantes o ablandadores
6. diuréticos - para prevenir retención e agua
7. anticoagulantes - de ser necesarios

C. SEGUIMIENTO

Para mantener un rastreo preventivo a nuestros pacientes se les da seguimiento de laboratorios tres veces por semana los primeros dos meses y luego dos veces por semana. Según va progresando el paciente va disminuyendo su frecuencia. Esto mantiene un contacto continuo con nuestros pacientes especialmente al principio de trasplante, época en la cual mantiene dosis altas de medicamentos y en la que mayor riesgo de infecciones y rechazos hay. El paciente mantendrá también un seguimiento con su nefrólogo de cabecera, lo que les provee un seguimiento dual entre el cirujano de trasplante y su nefrólogo.

Laboratorios

- Transplant Profile: creatinina, BUN, glucosa, electrolitos, calcio, fósforo, ácido úrico, GGT y bilirubina total
- CBC
- U/A
- niveles séricos de ciclosporina
- pruebas de depuración de orina para creatinina y proteína

La tendencia de nuestros médicos es ir ajustando las dosis de medicamentos pero es importante el monitoreo de estos laboratorios para así hacerlo. Mientras más se bajen éstos, menos serán los efectos secundarios. Nuestro Centro cuenta con cubierta médica las 24 horas, disponibilidad de estudios ancilares 24 horas y un verdadero compromiso de todo el personal y de la Institución que nos alberga. Se le instruye a los pacientes a dónde, cuándo y cómo acudir o consultar en caso necesario.

D. DIETA

Una de las metas es tener un paciente bien nutrido, sin sobrepeso, con buenos hábitos alimenticios, una presión arterial estable, y buenos niveles de colesterol, triglicéridos y lipoproteínas. Sabemos que hay enfermedades que requieren patrones alimenticios especiales, como lo son la diabetes, hipertensión, hiperuricemia entre otros. Por ejemplo, aun después de haberse trasplantado un paciente diabético deberá continuar con el régimen alimenticio que necesite. Cada paciente es evaluado por la Nutricionista de Trasplante tomando en consideración las necesidades individuales de cada persona. Este miembro del equipo multidisciplinario les brindará el apoyo y seguimiento que sea preciso.

E. FINANCIAMIENTO Y CUBIERTA DE MEDICAMENTOS

Medicare cubre el 80% del costo del trasplante y 80% del costo de los medicamentos inmunosupresores durante el primer año. La Legislatura de Puerto Rico ha asignado unos fondos los cuales son administrados por el Consejo Renal de Puerto Rico y les brindan el beneficio de cubrir los costos de la ciclosporina ya que esta droga es sumamente costosa. El costo de otros medicamentos es responsabilidad del paciente o su plan médico.

F. CONSEJOS GENERALES

Nuestro fin primordial es que el paciente trasplantado se pueda rehabilitar y pueda llevar una vida normal con las menos restricciones posibles. Sin embargo, hay algunas recomendaciones y consejos que deben seguir constantemente:

- cuidarse de sol
- NO FUMAR
- precaución con las infecciones
- comunicarse inmediatamente con nuestras oficinas ante cualquier signo o síntoma de rechazo, o infección o tumor
- hacer ejercicio
- mantener dieta balanceada
- planificar embarazos
- si es mujer, visitar ginecólogo cada seis meses
- si es hombre, visitar urólogo cada seis meses
- llevar vida sexual monógama

Conclusión

El trasplante es un tratamiento complejo en el cual es crítica la participación del propio paciente: no hay nadie que pueda interesarse más en el paciente que él mismo. Nosotros los apoyamos y monitorizamos para que pueda alcanzar la mejor calidad de vida posible, y alcanzar su máximo desarrollo y rehabilitación potencial y la educación va dirigida a desarrollar esta autosuficiencia, pero además, a lograr su compromiso y participación en el manejo de su condición.

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Artículos Originales:

La Evaluación Social y el Grave Problema de No-Cumplimiento

Por: Milagros M. Souchet, MSW

Trasplante Renal es una modalidad de tratamiento muy exitosa que está disponible para los pacientes con fallo renal crónico. Le provee al paciente la oportunidad de liberarse del diálisis y poder retornar a un nivel de independencia que le permite ser autosuficiente dentro de la sociedad. Es la puerta que le da la oportunidad al paciente de llenar una vida normal, manteniendo o adquiriendo una educación y/o empleo, estableciendo una familia y contribuyendo a la sociedad de forma productiva.

Lograr trasplantes requiere mucho esfuerzo y sacrificio para el paciente y la familia. El paciente que tiene el privilegio de tener un donante va a pasar por un periodo de espera y de ansiedad hasta que su donante sea aceptado(a). El que depende de un donante cadavérico va a pasar por un proceso de espera con la esperanza de poder trasplantarse. Por la escasez tan grande de órganos, el lograr trasplantarse puede considerarse una victoria. Sin embargo, la batalla no termina con la cirugía para implantar el injerto. Ahí comienza la carrera por mantener el buen funcionamiento del riñón trasplantado. El paciente tiene que someterse a terapia continua de inmunosupresores, cambios en la imagen corporal, régimen de dieta y laboratorios y visitas médicas frecuentes. Ocurre un proceso de ajuste físico y emocional. El éxito del trasplante va a depender en gran parte, de cuan cumplidor es el paciente con su régimen terapéutico.

Cumplimiento es una de las preocupaciones mayores de los programas de trasplante. No-cumplimiento con los regímenes de tratamiento ha demostrado ser un factor mayor en el rechazo y/o pérdida del trasplante renal (1). La meta de los programas de trasplante es evitar o disminuir el problema de no-cumplimiento. Se han hecho diversos estudios tratando de identificar factores que afectan el cumplimiento. Entre ellos se encuentran factores demográficos (edad, sexo, raza), factores socio-económicos (empleo, fuentes de ingreso, seguro médico, vivienda y transportación), factores psico-sociales (sistema de apoyo, problemas familiares, depresión, abuso de alcohol y drogas, auto-imagen) e historial de no-cumplimiento con tratamiento de diálisis. Estos factores contribuyen a que el problema de no-cumplimiento sea uno complejo.

Entre los factores que afectan el cumplimiento hay algunas que no se pueden alterar (Ej. sexo, edad, lugar de residencia). Hay otros en los cuales es indicada la intervención social y sociológica y donde el paciente y/o familia puede hacer modificaciones. Existe un concenso entre los programas de trasplante y es la necesidad de identificar al paciente con problemas de cumplimiento, antes de la cirugía, para poder desarrollar estrategias que le permitan al paciente modificar su comportamiento. Esto se puede lograr durante el periodo pre-trasplante, mediante una evaluación exhaustiva del candidato a trasplantarse. El candidato debe ser evaluado por el equipo (coordinador, cirujano, nefrólogo, dietista y trabajador social) para obtener una imagen completa del paciente. Se evaluan las áreas médicas, sico-sociales y nutricionales. La evaluación psico-social es una parte integral de la intervención tradicional de trabajo social y la fundación para el tratamiento individualizado. Las intervenciones psico-sociales, se consideran importantes para una evaluación pre-trasplante exitosa y el proceso educacional (2). Durante la evaluación psico-social se estudian los factores demográficos, económicos, sociales y sicológicos relacionados al candidato a trasplante. Se evaluaron las actitudes del paciente, sus expectativas, su auto-imagen y su sistema de apoyo. Se evalúa el área de cumplimiento en diálisis mediante intervención directa con el paciente y familia y mediante "feed back" que se obtiene del trabajador social y/o otro personal designado del centro de diálisis al cual pertenece. Otro factor a evaluarse pre-trasplante es lo que espera el paciente obtener al trasplantarse. ¿Cuáles son sus expectativas? Me atrevo a sugerir que un paciente tiene mayor probabilidad de presentar problemas de cumplimiento si sus "metas" no son logradas con el trasplante. Hay que evaluar cuan reales son sus expectativas ("Me voy a curar con el trasplante, se terminaron las complicaciones") y si éste comprende a cabalidad las implicaciones del mismo.

Una variedad de factores contribuyentes han sido sugeridas como explicación para no-cumplimiento y propuestas soluciones a menudo enfatizan intervenciones durante la fase pre-trasplante: pruebas de cumplimiento, consejería, contratos, más educación y sesiones grupales mandatorias o voluntarias para preparar al paciente (3). El vehículo para ayudar al paciente con sus problemas de cumplimiento es a

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través de la educación mediante el programa de trasplante y su centro de diálisis. El paciente debe estar bien familiarizado y tener la oportunidad de entender e internalizar lo que conlleva la modalidad de trasplante y la responsabilidad adherida al mismo. Debe entender los beneficios, los riesgos, las posibilidades de rechazo y sobre todo el 'papel estrella" que él juega para tener un trasplante exitoso. En nuestro programa de trasplante, aquellos pacientes identificados con problemas de cumplimiento en diálisis deben demostrar a través de un período de prueba que su comportamiento ha mejorado. Hay reuniones con pacientes y familiares y se coordina seguimiento en la Unidad de Diálisis. Aquellos pacientes con problemas económicos y de transportación, son orientados sobre los costos de los medicamentos y necesidades de tener medio de transportación disponible. Se les estimula y orienta al desarrollo de actividades y coordinación con agencias disponibles para remediar estas áreas. Esta práctica está siendo exitosa ya que el paciente se concientiza y asume parte de la responsabilidad económica de su trasplante. Los pacientes con problemas sicológicos se les requiere recibir ayuda profesional antes del trasplante. Se provee asistencia directa con la coordinación de servicios de la comunidad y/o a través de su centro de diálisis. Entendemos que la educación y prevención pre-trasplante es la mejor arma para evitar pobre cumplimiento post-cirugía. Es importante concientizar al paciente de sus responsabilidades desde que comienza su orientación sobre el programa.

En 1988, los Programas de Trabajo Social y Trasplante del Hospital Auxilio Mutuo realizaron un estudio donde se compararon doce pacientes cumplidores y doce pacientes no cumplidores debido a un incremento en pérdida de injertos en pacientes con historial de función renal estable. El objetivo era describir las características que diferenciaban a un grupo del otro. Se encontró que los pacientes que no cumplían con su tratamiento de diálisis, tampoco lo hacían una vez trasplantados. Los no cumplidores también presentaban problemas económicos de transportación, problemas de relaciones de familia y problemas psicológicos (4). Lo que sugiere que existe una relación entre cumplimiento y el funcionamiento psico-social del paciente. Muchos de estos problemas se puede evaluar y anticipar antes del trasplante y así buscar estrategias de intervención y concientización.

El proceso de educación al paciente ha de ser uno constante ya que el factor cumplimiento va a ser determinante en la duración de la vida del injerto. Debemos de evitar que el recipiente caiga en un estado muy cómodo donde sus expectativas no sean reales y llegue a considerar que "se ha curado" y por ende comienza a jugar con su tratamiento. Por tanto, la educación y concientización del paciente continúa siendo parte integrante después del trasplante, ya sea mediante intervención individual o grupal, a través de todas las disciplinas que interactúan con el paciente. Nuesto programa intenta que nuestros pacientes vean al trasplante como un evento positivo en sus vidas y que el deseo de no perder su riñón sea la motivación para internalizar y abrazar el buen hábito de cumplimiento.

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Artículos Originales:

Hiperlipidemia en Pacientes con Trasplante de Riñón: Causas, Efectos y Manejo

Por: Wanda Borges, LND

Es de conocimiento general que anormalidades en el metabolismo de las lipoproteínas están asociadas a riesgos de enfermedades ateroscleróticas (1). Existen diferentes estrategias terapéuticas para reducir niveles de lípidos circulantes que han demostrado reducir la morbilidad y mortalidad cardiovascular (2,3). Además de ser común en pacientes con buena función renal, no debemos olvidar aquellos cuya función renal está disminuida y lo alta que es la incidencia de enfermedades cardiovasculares en este tipo de paciente. Si vemos la patofisiología y tratamiento de las hiperlipidemias en el paciente con enfermedad renal, debemos recordar en qué consiste el proceso de transporte de lípidos. La deposición de lípidos es un proceso complejo y dinámico que envuelve transporte desde el intestino al hígado, del hígado a tejidos periferales y de los tejidos periferales al hígado para secreción de bilis (4,5). Las lipoproteínas se clasifican de acuerdo al contenido de lípido y densidad. En el proceso dietario los lípidos son absorbidos del intestino y almacenados en forma de quilomicrones, la mayor de las lipoproteínas. Los triglicéridos componen el 85% de la partícula del quilomicrón. Estos son fácilmente hidrolizados por la enzima lipasa lipoprotéica localizada en las paredes de las venas. Esta hidrólisis produce ácidos grasos libres y glicerol que luego son utilizados para el metabolismo celular o para uso y almacenaje en el tejido adiposo. Los quilomicrones restantes son removidos por el hígado. Este transporte de lípidos vía quilomicrones ocurre bien rápido.

El segundo paso importante del transporte de lípidos recae en el colesterol y triglicéridos que se encuentran en el hígado y va a tejidos periferales. El hígado sintetiza VLDL (lipoproteínas de bien baja densidad) que transportan triglicéridos pero de origen endógeno (hígado) a tejidos como el muscular y adiposo. Durante el proceso, los TG de las VLDL se hidrolizan por la enzima lipasa lipoprotéica y parte es removida por el hígado y parte se convierte en LDL (lipoproteínas de baja densidad). Los LDL transportan el 75% de todo el colesterol en la sangre. Tiene como función proveer colesterol a los tejidos para síntesis de membrana celular y como recursos de hormonas esteroidales entre otras. Se ha asociado niveles elevados de LDL con aterosclerosis y enfermedades coronarias (CHD). Recientemente se ha enfocado mucha atención en la tercera lipoproteína y su transporte, la HDL (lipoproteína de alta densidad) o colesterol bueno. Este participa en el transporte al reverso del colesterol, un proceso por el cual el colesterol en exceso se transporta desde los tejidos periferales hacia el hígado para su utilización o desecho. Se asocia niveles elevados del mismo con protección contra CHD. Las grandes intervenciones clínicas y epidemiológicas sugieren que niveles totales de colesterol y LDL están estrechamente relacionados a enfermedades coronarias. En adición, existe suficiente evidencia que sugiere que niveles altos de HDL tiene un efecto protector contra éstos. Las causas primarias podemos resumirlas en desórdenes en el metabolismo de los lípidos, dieta inadecuada y una respuesta inadecuada a la dieta normal.También puede ser secundario a otras enfermedades o condiciones como pancreatitis, hipotiroidismo, síndrome nefrótico, diabetes mellitus, enfermedades obstructivas del hígado, medicamentos antihipertensivos y ciertas drogas como esteroides anabólicos y cabe mencionar factores genéticos o hereditarios.

Hiperlipidemia es algo común luego del trasplante de riñón. Los niveles de colesterol total y los LDL están usualmente elevados mientras que los HDL se mantienen normal (6,7) y existen otros factores que contribuyen a éstos luego del trasplante de riñón. Por ejemplo, el grado de función renal del injerto y la cantidad de excreción de proteína en la orina, se ha encontrado que está relacionado a niveles de colesterol en sangre luego del trasplante (6). Si bien es cierto que todos los pacientes trasplantados son tratados con corticosteroides también es difícil determinar lo extenso que puede ser el efecto de éstos en los niveles de lipoproteínas. Sin embargo, otros pacientes tratados con dosis de corticosteroides similares a as utilizadas luego del trasplante han tenido aumento comparable en los niveles de lipoproteínas. La terapia de inmunosupresión utilizada para mantener el injerto está asociada no solo a problemas en niveles de lípidos y obesidad sino catabolismo de proteínas, intolerancia de glucosa, hipertensión, hiperkalemia y problemas en el metabolismo de vitamina D. Los pacientes luego del trasplante necesitan un seguimiento dietario inmediato. Idealmente, el plan debe ser discutido

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antes de la cirugía y debe explicarse las restricciones dietarias necesarias. Además de la obesidad, el 60% de los pacientes trasplantados tienen hiperlipidemia asociada mayormente al uso de glucocorticoides, sin embargo, no es éste el único factor.

Obesidad, función renal disminuida causadas por rechazo, uso de diuréticos, "B-adregernics" agentes bloqueadores y ciclosporina pueden contribuir al desorden de lípidos. Estudios a corto plazo realizados en pacientes trasplantados han demostrado que el colesterol total puede ser disminuido con seguimiento dietario (8,9). Los pacientes utilizados, sin embargo, tenían niveles elevados de VLDL el cual responde mejor a manejo dietario, no así aquellos que tenían LDL elevados luego del trasplante. Lo que realmente ha demostrado tener un efecto en reducir estos niveles de LDL es el uso de la dieta Etapa I de la Asociación Americana del Corazón (10) la cual provee a las nutricionistas - dietistas guías para el manejo de hiperlipidemias (11). El uso de la dieta Etapa I o "Step One Diet" consiste en reducir el total de las grasas a un 30% del total de las calorías y dentro de éstos, más de 10% sean ácidos grasos polidesaturados. Que el consumo de colesterol sea menor de 300 miligramos al dia y que el total de calorías totales sea para lograr y mantener un peso deseable. Sin embargo, los estudios realizados en una población de pacientes trasplantados a los cuales se le orientó en una dieta Etapa I y con niveles elevados de colesterol concluyen que los riesgos de enfermedades cardiovasculares entre ellos es similar a la población general con el factor adicional del riesgo al uso de esteroides y la morbilidad debido a ataques cardíacos y accidentes cerebrovasculares. La prevalencia de hipercolesterolemia luego del trasplante del riñón ha variado de un estudio a otro pero la mayoría refleja de 16 - 30% de prevalencia luego del trasplante (6).

El número de pacientes con hipercolesterolemia luego del trasplante disminuye con el tiempo y el tratamiento no es específico hasta que se alcance la dosis de esteroides adecuada. Muchos investigadores han tratado de controlar el problema de hiperlipidemia utilizando dietas bajo grasa y bajo colesterol pero en muchos casos no se han obtenido niveles de LDL adecuados luego del seguimiento dietario. Sin embargo, la Asociación Americana del Corazón continúa recomendando el uso de dietas baja en grasa en pacientes trasplantados. A pesar del buen cumplimiento dietario que puede existir entre los pacientes con tipo de recomendaciones dietarias específicas, más de la mitad del grupo estudiado mantuvo niveles de LDL elevados en comparación a las recomendaciones. Muchos de ellos redujeron su peso desde el inicio de estudios y tuvieron disminución en niveles de colesterol en la sangre aunque a largo plazo el cumplimiento dietario de los pacientes se vio disminuido (12). También se ha evaluado la relación de los atrapadores de ácidos biliares y la disminución en niveles de LDL y cómo pueden interferir con la habilidad o eficacia de los agentes inmunosupresores (13). Lo que concluye que deben realizarse estudios que puedan establecer una relación entre los medicamentos para disminuir niveles de lípidos y los medicamentos de inmunosupresión. Los nuevos inhibidores de HMG -CoA reductasa considera ser el agente más efectivo para disminuir niveles de colesterol LDL en pacientes que han recibido trasplante de riñón, no así para pacientes con trasplante de corazón que estén utilizando ciclosporina (14). Para concluir, es claro que muchos de los desórdenes en niveles de lípidos en pacientes con enfermedad renal puede ser atergénica.

En adición, evidencia reciente sugiere que el metabolismo anormal de lípidos puede ser factor de riesgo de complicaciones microvasculares en este tipo de paciente. En Puerto Rico se está realizando un estudio para ver el efecto de restricciones dietarias en pacientes luego del trasplante y sus niveles de lípidos. Los resultados al presente reflejan un efecto positivo y preventivo en control de colesterol y lipoproteínas de baja densidad aunque es necesario continuar estudiando la población escogida. Para finalizar, no debe olvidarse que la hipercolesterolemia es factor de riesgo en pacientes con trasplante de riñón y para enfermedades cardiovasculares y que las restricciones dietarias en contenido de grasa y colesterol resultan en provecho de estos pacientes.

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In Memoriam:

María Pérez Rodríguez

Por: Eduardo A. Santiago Delpín, M.D.

Cuando enviamos para imprenta este número especial del BOLETIN de la Asociación Médica de Puerto Rico recibimos la noticia de la muerte de nuestra compañera de trabajo María Pérez. María era la Directora del Programa de Ciclosporina del Consejo Renal de Puerto Rico, fue paciente trasplantada, era paciente de diálisis y era una gran amiga nuestra.

Murió de complicaciones de su enfermedad, una de muchas complicaciones que le aquejaron toda su vida ya que desde joven padeció de lupus.

La vida de María Pérez es un documento humano, de fortaleza, de aceptación, de buen ánimo y ejemplo vivo casi símbolo de cómo mente y espíritu pueden sobreponerse a los estragos de una fisiología enferma. Tuvo amigos y sembró y cosechó amistades desde sus primeros años de asociación con médicos y hospitales. Fue ejemplo, con su sonrisa continua, de cómo sobrellevar de manera cristiana dolencias e infortunios. Sirvió de ejemplo a facultad, enfermeras, técnicos y muchos otros pacientes de cómo vivir una vida plena no importa qué circunstancias le rodeen a uno.

Su sentido de misión la llevó a desarrollar dentro del Consejo Renal de Puerto Rico y con los miembros del Programa de Trasplante la encomienda de un programa de obtención, administración y distribución de ciclosporina en Puerto Rico. Su celo y lealtad como custodio directo y administradora del Programa la llevaron a vistas administrativas en el Departamento de Salud, vistas públicas en la Legislatura, reuniones continuas con pacientes y administradores, e incluso hasta manifestaciones públicas.

En su agenda, el paciente venía primero y fueron muchas las ocasiones en que interrumpió aun su comida para atender las necesidades de medicamentos de los pacientes.

Fue elemento de apoyo con muchos pacientes al orientarles, contestarles sus preguntas y enfatizarles la necesidad de tomar sus medicamentos siempre. Esto lo dicen los mismo pacientes, que María fue principalísima en enseñarles de verdad la necesidad de cuidarse. Y el recuerdo que todo tenemos de ella es el de su laboriosidad continua, su entrega a los pacientes y al programa, y su buen ánimo y sonrisa contagiosa para reafirmar y transmitir de manera casi evangélica su filosofía personal.

Los pacientes de trasplante, el Consejo Renal donde laboró por años, el Programa de Trasplante de Puerto Rico, tendremos siempre una deuda de gratitud con María Pérez por haber llevado sobre sus hombros parte importante de esta misión. Se despidió del mundo físico prematuramente, pero su mensaje estará con nosotros siempre.

Epílogo:

Avances de Inmunobiología

Por: E.A. Santiago Delpín, M.D., MS

Vivimos rodeados de organismos quienes, en virtud de perfecta misión ecológica, nos quieren convertir en su sustancia, y de los cuales nos tenemos que defender. Algunos viven dentro de nuestro propio cuerpo. El poderse defender de ellos depende de que desarrollemos la capacidad de discernir entre lo que es extraño y lo que es propio.

Interacción molecular durante presentación de antígeno: Aparentemente el reconocimiento inicial ocurre dentro del macrófago, inmediatamente después de la fagocitosis y cuando ocurre el rompimiento de antígenos en fragmentos más pequeños. Fragmentos correspondientes caen en la endidura de la molécula clase II que al salir a la superficie la presenta al receptor de las células T ayudantes. Aunque ésta es la interacción principal, necesita 2 elementos adicionales: la coaptación de moléculas ayudantes incluyendo las moléculas de adherencia celular, las moléculas de asistencia y las moléculas CD4 y CD8; y la activación por parte de moléculas mensajeras que le dan al linfocito T el permiso de proliferar, incluyendo interleukina 1, interleukina 6 y luego interleukina 2 en acepción autocrina. Debajo de la membrana, la calmodulina es esencial en llevar un mensaje a las proteínas correspondientes dentro de las cuales la serina-treonina fosfatasa defosforila proteínas afines al DNA. El resultado neto de esta secuencia es la producción de otras linfoquinas de amplificación y de ataque. Tanto la FK-506 y la rapamicina, como la ciclosporina interfieren con este mecanismo.

La parte eferente de ataque y daño ocurre con las moléculas clase I de manera análoga, virtiendo las células T citotóxicas la perforina, óxido nítrico y otras sustancias que hacen daño a la célula enemiga o invasora.

El rechazo agudo ha sido más o menos controlado en años recientes, la sobrevida de los primeros años aumentando considerablemente. Los factores principales son el entendimiento de qué está ocurriendo en este tipo de rechazo, y los nuevos inmunosupresores entre los cuales se destacan la ciclosporina, el FK506, y los antisueros biológicos, incluyendo antisuero antilinfocítico y el anti-CD3 (OKT-3) en la prevención y manejo del rechazo.

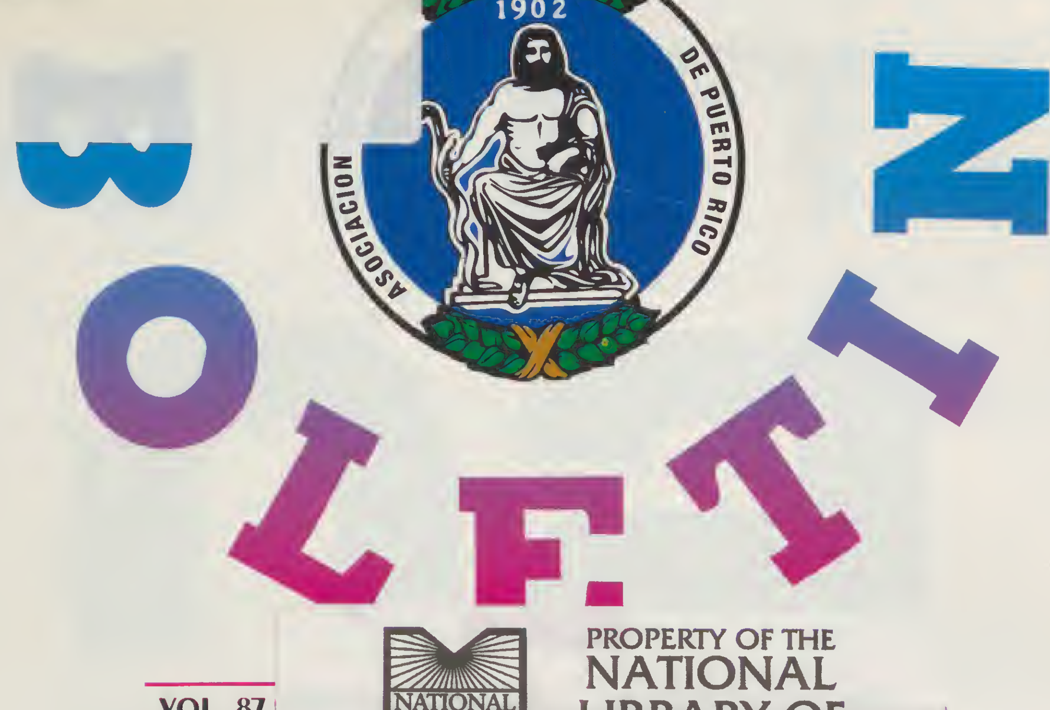
No obstante el rechazo crónico continúa siendo el factor principal en pérdida crónica de riñones a través de los años. Descubrimientos recientes indican que las mismas citoquinas que expanden y amplifican la respuesta inmunológica, resultan ser factores de crecimiento y de cicatrización, Por esta razón, al haber pequeñas pero crónicas injurias al riñón, bien sea por drogas, viruses o rechazo, estas hormonas atraen células importantes en la producción de cicatriz y eventualmente se oblitera el parénquima del órgano trasplantado por la producción exagerada de fibrosis secundaria a una producción crónica de citoquinas de crecimiento.

Tolerancia: Se están revisando y reviviendo los esperanzadores experimentos de tolerancia neonatal, pero ahora como tolerancia en adultos. Varios investigadores han confirmado los estudios seminales de Starzl quien descubrió que en injertos hepáticos exitosos se encuentran células inmunocompetentes del donante que vivieron con el órgano donado, en áreas distantes del cuerpo del recipiente. Su presencia y aparente vitalidad sugieren un rol activo en los pacientes que tienen tolerancia inmunológica demostrada. Por otro lado, qué condiciones exactamente propician el desarrollo de estas células benefactoras en algunos casos y no en otros, sigue siendo pregunta crucial.

La actividad de trasplante continúa a paso acelerado y prácticamente todos los programas pueden reclamar ya buenos resultados clínicos en trasplante de riñones y de otros órganos extrarenales. La investigación continúa con esperanza por parte de científicos básicos y clínicos, universidades e industrias.

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Editorial:

Alteración en los Patrones de Medicamentación en Función de la Edad del Paciente Envejeciente

(Revisión de Literatura)

Por: Edgardo N. Rosario Burgos, MD, MPH (Gerontólogo)

El uso de la medicamentación y tratamiento farmacológico en pacientes envejecientes es tema de la mayor preocupación para todo profesional de la salud. Según las estadísticas recientes, los envejecientes utilizan el 30% de los medicamentos recetados en los Estados Unidos y Puerto Rico, siendo estos usuarios, el 12% de la población tanto aquí como en el continente. Se refleja en las estadísticas que éstos también utilizan cerca del 40 al 50% de los medicamentos (OTC) sin receta (National Center for Health Services Research, and Health Care Technology, 1989). Los cambios fisiológicos unidos con el aumento de la medicamentación, ponen a riesgo a estos pacientes de efectos adversos y de la consabida interacción de estas drogas. Los más recientes estudios reportan que cerca del 31% de las admisiones hospitalarias en pacientes de edad avanzada están íntimamente relacionadas con terapia medicamentosa (Grymonpre et al., 1988; Colt and Shapiro, 1989; (Williamson and Chopin, 1980). En adición, el viejo presenta en triple proporción, mayor cantidad de experiencias adversas a reacciones por medicamentos, que en los jóvenes adultos (Nolan and O'Malley, 1988). A pesar del hecho de que el envejeciente usa una gran proporción de medicamentos, existe muy poca información disponible, proveyendo guías de dosificación para esta población envejeciente. Se ha dejado en manos del médico el analizar los cambios que ocurren con la edad, para entonces predecir cómo éstos pueden afectar la farmacología y farmacocinética de las distintas drogas de tratamiento médico.

Cambios fisiológicos que afectan la farmacocinética

La farmacocinética se define como la manera en cómo una droga es manejada o dispuesta por el cuerpo humano, incluyendo su absorción en el torrente sanguíneo, su distribución en el cuerpo, metabolismo y eliminación. Hay varios cambios fisiológicos que ocurren con la edad, y que afectan la disposición de las drogas en el cuerpo.

Absorción: Mientras el grado de absorción gastrointestinal de la mayoría de las drogas que se toman por boca no es alterada de manera significativa en los envejecientes, existen varios cambios en el tracto gastrointestinal que sí pueden influenciar el patrón de absorción. El vaciado gástrico se prolonga, causando potencialmente un retraso en la absorción desde el tracto gastrointestinal. Esto es de suma importancia clínica para medicamentos administrados agudamente, como los analgésicos. La motilidad se disminuye en el tracto gastrointestinal del envejeciente, y la corriente sanguínea se disminuye, particularmente si el paciente tiene un diagnóstico de fallo cardíaco congestivo. Otro factor importante es que aproximadamente el 40% de los envejecientes tienen una secreción gástrica disminuida resultando en una acloridia (no presencia de ácido en el estómago) o hipocloridia (reducción de ácido en el estómago). Esto puede dificultar la desintegración o disolución de medicamentos administrados vía oral. La absorción por transporte activo a través del tracto gastrointestinal se ve disminuida, pero dado que la mayoría de los medicamentos son absorbidos por el proceso de difusión pasiva, estos cambios en absorción no tienen la mayor trascendencia clínica.

La absorción de medicamentos por la vía intramuscular no ha sido muy estudiada en el envejeciente, pero existen consideraciones sobre ella que sí pueden ser predecidas, sobre bases fisiológicas. La absorción intramuscular del viejo puede dificultarse por causa de flujo sanguíneo periferal reducido, particularmente en pacientes con compromiso periferovascular. El aumento de tejido conectivo en estos pacientes, puede dificultar la permeabilidad del tejido ante drogas inyectables, luego entonces, disminuyendo la absorción sistémica de una inyección intramuscular. Las inyecciones intramusculares pueden ser muy incómodas y dolorosas debido a la masa muscular disminuida de estos pacientes envejecientes frágiles.

La absorción de tipo sistémica debe ser considerada cuando se trate de utilizar un producto "transdermal" en los viejos. Este tipo de absorción no se ha estudiado mucho en el viejo, pero sí anticipamos que existen cambios en la piel que pueden afectar la misma. Los envejecientes tienden a tener una disminución en la hidratación de su piel así como una disminución en el contenido de lípidos en superficie, factores importantes para la penetración transdermal de drogas y medicamentos aplicables tópicamente. También, se

puede describir una keratinización (endurecimiento de piel) aumentada, aumentando los problemas de absorción. La disminución en el flujo sanguíneo periferal y compromiso en la microcirculación pueden perjudicar la absorción de productos tópicos transdermales. De los productos transdermales existentes (nitroglicerina, estradiol, clonidine, fentamyl) se recetan para envejecientes, por lo cual deben estudiarse individualmente en cada caso.

Distribución

La distribución de los medicamentos en el cuerpo es dependiente de: (1) si la droga es soluble en agua; y (2) cuán bien se adhiere la droga a las proteínas.

Cambios en el cuerpo relacionados con la edad pueden de manera significativa afectar esa distribución en el cuerpo. Con el aumento de edad la masa corporal y el contenido de agua en el cuerpo disminuyen, mientras el tejido graso aumenta. Esto obviamente, puede grandemente aumentar el volumen de distribución de aquellas drogas solubles en grasa, como las benzodiazepinas (medicamentos para combatir la ansiedad e inducen sueño, ej. Valium, Xanax, Restoril, Dalmane). Clínicamente observaremos que tomará mucho más tiempo tanto alcanzar niveles del medicamento, así como también tardará más su eliminación.

Otro factor que influye en el efecto de las drogas es su capacidad de adherirse a la proteína en el torrente sanguíneo. Muchos viejos que viven solos, no tienen una ingesta adecuada de proteínas, por mala nutrición.

Por ello veremos hipoproteinemia o bajos niveles de proteína en el cuerpo. El que ésto ocurra representa un alto contenido de partículas de droga no adheridas a la proteína que aumentan la concentración de droga activa, lo cual también aumenta la intensidad y duración de los efectos del medicamento. En particular, la Phenitoína y la Morfina deben ser seguidas de cerca por razón de lo antes indicado. Debemos tener cuidado en prescribir dos o más medicamentos cuya capacidad de adherirse a la proteína sea alta, ya que tienden a interactuar grandemente.

El vaciado cardíaco o "Cardiac Output", disminuye en el paciente, sobre todo en pacientes enfermos cardíacos. Esto resulta en un flujo sanguíneo afectado hacia varias partes del cuerpo.

Metabolismo

El hígado es el más importante órgano responsable de metabolizar los medicamentos. Allí son biotransformados hasta metabolitos activos e inactivos. Estos son excretados o eliminados del cuerpo en la bilis, orina o por vía de los riñones. Con el aumento en edad hay una disminución tanto en masa hepática como en flujo de sangre. Lo anterior, disminuye el metabolismo de los medicamentos, resultando en niveles elevados de drogas y un aumento en su efecto farmacológico.

Eliminación

La eliminación renal está considerada como el cambio más significativo en la farmacocinética en el envejeciente. Según los estudios realizados entre la cuarta y la octava década de vida, la masa renal disminuye en promedio del 20%, y el flujo renal sanguíneo disminuye en 10 mililitros/minuto/década, luego de los 30 años (Bennett, 1990). La filtración glomerular como medida de función renal, al igual que el "Creatinine Clearance", se reduce linealmente con la edad en la cuarta década de la vida (Bennett, 1990). La medición "Creatinine Clearance" a través de una colección de orina por 24 horas es la mejor forma de obtener una medida de función renal. Sin embargo, puede ser difícil el lograrla en un paciente envejeciente, a menos que se introduzca un cáteter (folley), con las complicaciones que ello puede traer a este paciente. De hecho, existe la posibilidad de estimar el "Creatinine Clearance" mediante una ecuación que toma en consideración la edad, el peso y la creatinina en suero. (Cockcroft & Gault, 1976).

Ecuación I (Paciente Delgado)

$$\frac{(140 - \text{Age})\ \text{LBW (Kg)}}{72 \times \text{Scr (mg/dl)}} = \text{CrCl men}$$

CrCl men x 0.85 = CrCl women

Ecuación II (Paciente Sobrepeso)

L BW men = 50 kg + 2.3 kg/Inch > 5 feet

L BW women = 45.5 kg + 2.3 kg/Inch > 5 feet

En las drogas eliminadas por vía de la secreción tubular también se afecta su excreción con la edad (Ej. nitrofurantoin).

Cambios fisiológicos que afectan la farmacodinámica

La farmacodinámica se refiere al proceso envuelto en la interacción entre la droga y el órgano o tejido receptor, del cual resultan respuestas terapéuticas o adversas. La farmacodinámica mide la intensidad, el "Peak", y la duración de la acción de un medicamento. Con la edad, la farmacodinámica se ve afectada por cambios que afectan la respuesta a los medicamentos. Algunos de estos cambios pueden aumentar la sensibilidad del paciente al medicamento, pueden disminuir el efecto de la medicación y también le

podría hacer más sensible a los efectos adversos de las drogas. Es difícil medir la acción del medicamento en el lugar de la acción o receptor. La concentración en sangre podría servirnos de guía, pero no es una consideración absoluta que prediga los efectos finales.

La hipotensión postural, disminución de respuesta de los baroreceptores, disminución en la motilidad gastrointestinal son entre otros, algunos de estos cambios fisiológicos que afectan la farmacodinámica del medicamento.

Conclusiones

Al escoger un medicamento para un envejeciente, los cambios farmacocinéticos y farmacodinámicos deben ser tomados en consideración. Los medicamentos que causan efectos sobre el sistema nervioso central, tales como depresión o confusión se deben evitar en lo posible en los viejos. Los antidepresivos y antisicóticos deben escogerse en base de su perfil de efectos colaterales.

Al decidir la dosis apropiada para viejos, es importante consultar la hoja de información del medicamento, en la Sección de "Dosis Geriátrica". Desafortunadamente, esta sección no existe en una gran mayoría de medicinas. Por ello, se sugiere comenzar con dosis bajas y titular, de acuerdo a la respuesta. Existen hoy día manuales relativos a dosificación en envejecientes.

Según hemos visto, la edad trae consigo grandes cambios que afectan la respuesta a drogas y medicamentos. No existen muchos estudios sobre ello actualmente. Nuevas investigaciones se están realizando por ahora. Mientras tanto, es importante que los médicos estén en conocimiento de estos cambios para que sean cuidadosos al escoger medicamentos y sus dosificaciones en nuestros viejos.

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Hypertension Secondary to Adrenal Tumors Ten Years Experiencie

Por: Enrique Vázquez Quintana, MD, FACS,
Fernando Bayrón Vélez, M.D., Gabriel García Talavera, MD

Summary: We have presented our ten years experience in the surgical management of adrenal tumors. Patients presenting with hypertension (9) are normotensive following the removal of the offending adrenal tumor. One patient had an extra-adrenal pheochromocytoma, one had a huge organized adrenal hematoma and one patient has a non-functional tumor. The diagnosis and management of endocrine tumors is a challenge to the clinician.

INTRODUCTION

It is estimated that hypertension affects 12-15% of the population. When no apparent cause is found it is labelled as essential hypertension. Surgically correctable hypertension accounts for 2-5% of all hypertensive patients. In general some endocrine adrenal tumors and vascular lesions are amenable to surgical cure. Renovascular hypertension includes renal artery stenosis, atheromatous occlusion of the renal artery, fibromuscular hyperplasia of the renal artery and coarctation of the aorta are examples of vascular lesions that can be cured by surgery. Primary aldosteronism, pheochromocytoma and Cushing's syndrome also produce hypertension that is treated and cured surgically.

We will review our experience in the treatment of adrenal tumors producing hypertension for the last ten years. Selected demonstrative patients are presented.

CLINICAL DATA

The diagnosis is made by measuring the adrenal hormones in the blood. The adrenal tumors were localized by CT scans. No invasive studies were utilized.

During the last 10 years (1985-1994) we have seen 12 patients with adrenal lesions. Nine patients presented with hypertension. A total of three patients were found to have primary aldosteronism, four patients were diagnosed as having pheochromocytomas (one extra-adrenal), two patients had Cushings' syndrome, two were non-functional, and one was found to have a huge adrenal hematoma. Table 1 thru 4 summarize the age, sex, diagnosis, location, date of operation and pathologic findings.

RESULTS OF TREATMENT

Eleven of the twelve patients underwent surgery. An adrenal tumor was identified and removed in nine patients. Only one adrenal gland was involved in those nine patients. Two other patients also had surgery, one had an extra-adrenal pheochromocytoma that could not be removed and the other patient had a left adrenalectomy for a huge organized hematoma. Ten of the operations were done without using blood transfusions, only the patient with the organized hematoma required the use of three units of packed red blood cells.

All the patients who presented with hypertension submitted to surgery were cured of their hypertension. One patient though hypertensive has a non-functional tumor of less than three centimeters and is being observed.

DISCUSSION:

Hypertension is a frequent disease, it is estimated that over 35 millions Americans suffer from this disease. In over 90% the hypertension is labelled as "essential", meaning that its cause is not known. Secondary hypertension includes renovascular and endocrinologic hypertension, included in the term surgically correctable hypertension. Patient with hypertension are at risk of illness and death from coronary heart disease, kidney disease and stroke. The prevention of these complications is the basis for the diagnosis and treatment of all hypertensive patients.

Hypertension in young patients should not be ascribed to essential hypertension. Additional efforts should be made to exclude renovascular hypertension and endocrine tumors. The diagnosis and treatment of surgically correctable hypertension is a very rewarding experience and a challenge to the clinician. Although the cost of diagnosing surgically correctable hypertension could be high the excellent results following operation and the quality of life provided to these patients are extremely important.

Adrenal tumors are uncommon. Even in large teaching institutions the number of patients seen annually is relatively small. So the number of patients seen by the senior author of this article in ten years in private practice is significant.

Table 1.
Primary Aldosteronism

Patient	Age	Sex	Hypertension	Location	Operation Date	Pathology
1	44	M	Yes	Right Adrenal	Nov. 1989	Adenoma
2	28	M	Yes	Left Adrenal	Aug. 1991	Adenoma
3	50	F	Yes	Right Adrenal	Nov. 1994	Adenoma

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Table 2.
Pheochromocytomas

Patient	Age	Sex	Hypertension	Location	Operation Date	Pathology
4	35	M	Yes	Right Adrenal	June 1985	Benign
5	51	F	Yes	Right Adrenal	Jan. 1986	Benign
6	51	F	Yes	Left Adrenal	April 1986	Benign
7	54	M	No	Extra-Adrenal	May 1989	Malignant

Table 3.
Cushing's Syndrome

Patient	Age	Sex	Hypertension	Location	Operation Date	Pathology
8	53	F	Yes	Left Adrenal	Sept. 1991	Adenoma
9	38	F	Yes	Right Adrenal	Jan 1994	Adenoma

Table 4.
Others

Patient	Age	Sex	Hypertension	Location	Operation Date	Pathology
10	58	F	Yes	Right Adrenal	Jan. 1990	Adenoma
11	66	F	Yes	Left Adrenal	————	————
12	28	M	No	Left Adrenal	Aug. 1994	Hematoma

Aldosteronomas are usually benigh tumors, of small size, up to two centimeters. They are usually single and are seen more frequently on the left adrenal. The account for 0.5-2% of all hypertensive patients. (1) A significant number of them exhibit hyperglycemia or over diabetes mellitus explained by the severe hypokalemia and the pancreas producing pro-insulin instead of insulin. Medical correction of the hypokalemia and or surgery improves or cures the diabetes. Patient #1 who was 44 years old at the time of surgery was hypertensive for 22 years, his blood pressure returned to normal few months after operation.

Pheochromocytoma occurs in about 0.1% of hypertensive patients. The hypertension can be persistent or paroxysmal and 15% might be asymptomatic. Pheochromocytomas are usually large tumors, more frequent on the right side. Malignancy is reported between 5-20% of the patients and associated to multiple endocrine neoplasias. (2,3) CT is the employed to identify the affected gland. (4,5) Invasive studies are no longer used. Patient #7 had a malignant extra-adrenal tumor, unresectable. The patient died as a result of cardiac failure five years after diagnosis. There were no familiar cases in our group.

Cushing's disease resulting from ACTH producing pituitary tumors is nowadays treated by trans-sphenoidal removal of the pituitary lesion or by proton-beam irradiation. (6) Cushing's syndrome produced by an adrenal adenoma or carcinoma is best treated by unilateral adrenalectomy. For metastatic carcinoma of the adrenal gland chemotherapy (Mitotane, Lysodren) a cytotoxic adrenal cortical agent is utilized as a palliative drug. (7) Patient #8 with Cushing's syndrome also has hyperparathyroidism but is reluctant to undergo neck exploration.

All nine patients who presented with hypertension were cured by the removal of the adrenal tumor.

Acknowledgment: We would like to thank the following colleagues who referred these patients for surgical treatment: Dr. Lillian Haddock, Dr. Vilma Rabell, Dr. Francisco Aguiló, Dr. Julián Vázquez Plard, Dr. Claudio Renjifo Romero, Dr. Carlos Díaz, Dr. René Vargas, Dr. Rafael A. Rivera, Dr. José L. Riestra y Dr. Aníbal Marín.

Resumen: Presentamos nuestra experiencia de diez años en el manejo quirúrgico de pacientes con tumores adrenales. Nueve pacientes con hipertensión permanecen normotensos luego de la remoción del tumor de la adrenal. Un paciente tenía un tumor de origen extra-adrenal, otro tenía un hematoma de adrenal de gran tamaño y un tercero presentaba un tumor no funcional. El diagnóstico y manejo de tumores endocrinos continúa siendo un reto para el clínico.

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Artículos Originales:

Surgical Management of Hyperparathyroidism A 24 Years Experience

Por: Enrique Vázquez Quintana, M.D., FACS

Summary: Our 24 years experience in the surgical treatment of 130 patients with primary hyperparathyroidism was presented. A single adenoma of the parathyroid glands was the predominant lesion. The lower parathyroid glands were more frequently the site of the adenoma, with the right lower gland presenting the highest incidence. The incidence of hyperplasia and carcinoma is similar to the reported literature. The offending glands were identified in the vast majority of the patients. The number of complications is significantly low with a zero surgical mortality. The utilization of preoperative localizing test is not recommended for the initial neck exploration. Satisfactory results can be obtained with a minimal work up.

INTRODUCTION

Primary hyperparathyroidism is a relatively common disorder. Many patients present with kidney stones, gastrointestinal problems, bony pains and some others present vague symptoms or are asymptomatic. Symptomatic patients are managed surgically. Asymptomatic patients should be followed closely by the internist or endocrinologist for renal dysfunction. Since the mortality and morbidity of a neck exploration is negligible asymptomatic patients are also treated surgically, especially if they are young.

The routine use of automated calcium analysis in all new patients has detected an increasing number of patients with hypercalcemia secondary to hyperparathyroidism. The etiology of primary hyperparathyroidism is still elusive. The utilization of neck irradiation has been implicated as causative agents in some patients. (1) Other stimuli to the parathyroid glands are thiazide diuretics, calcitonin, propylthiouracil, glucagon and magnesium deficiency. (2)

PATHOLOGIC ANATOMY

Primary hyperparathyroidism is produced either by a parathyroid adenoma, hypeplasia or carcinoma. In large series parathyroid adenomas account for 80-85% of the cases, hyperplasia in 10-12% and carcinoma in less than 3% of the patients. Most authors recommed the removal of the offending gland or glands. The lower parathyroid glands are more frequently affected by adenomas and statistically slightly more frequent on the right lower parathyroid gland.

CLINICAL DATA

From January 1971 to December 1994 a total of 130 cases were treated surgically by the author. Most of the patients were referred by an endocrinologist or internist. Prior to 1975 the diagnosis of primary hyperparathyroidism was made by the process of excluding other causes of hypercalcemia such as sarcoidosis, hypernephromas, milk-alkali syndrome, oat cell carcinoma of the lung, metastatic bone disease and others. With the advent of the PTH serum assay the diagnosis of hyperparathyroidism is readily confirmed.

As described in the medical literature the disease is more frequently seen in females. In our series we had 100 females for a 76.9%. The average age for our entire group was 55.7 years, 57.4 for females and 49.1 for males. (Table 1) The calcium levels ranged from 10.7 - 15.5 mgs/dl, PTH levels were done in 79 patients and was elevated in all except 3 instances.

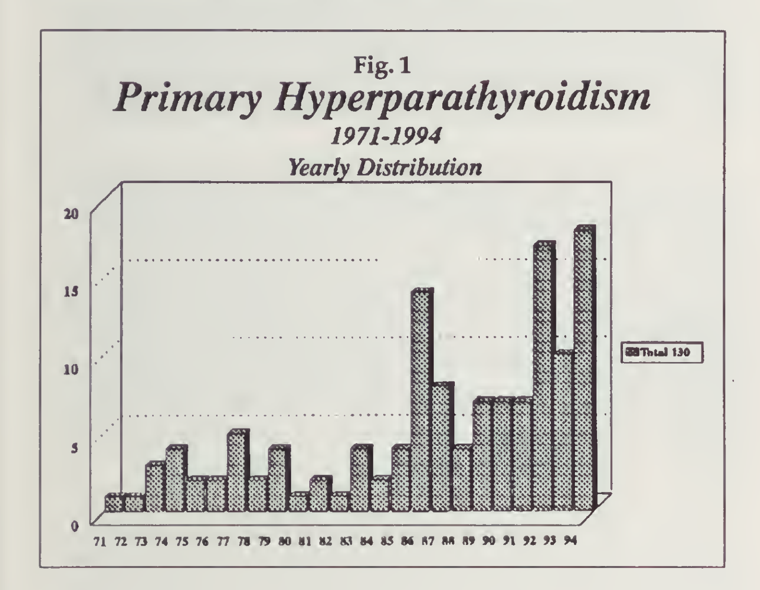
Table 1.
Primary Hyperparathyroidism 1971-1994

Total number of patients - 130		
Sex distribution:		
Females 100		76.9%
Males 30		23.1%
Average Age ....55.7 years		
Range ....19-83 years		
Females ....57.4 years		
Males ....49.1 years		

Fourteen patients were over 70 years old, the oldest being 83 years old.

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The distribution of patients by year is shown in Figure 1. During de first fifteen years the number of cases varied from 1 to 5 patients per year. After 1986 there was a significant increase in the number o patients seen every year and reaching to 17 patients in 1992. This is probably due to the particular interest of the author in treating this type of patient.



The presenting symptoms were renal lithiasis, bony pains, constipation, peptic ulcer disease or gastritis, foreign body sensation in the eyes and pancreatitis and mental changes. Twenty eight percent of the patients were asymptomatic. (See Table 2)

Table 2.
Primary Hyperparathyroidism 1971 - 1994

Total number of patients	130
Symptomatology:	
Renal lithiasis	38.5%
Bony pains	28.1%
Constipation	18.8%
Ulcer or gastritis	12.5%
Foreign body sensation in eyes	5.2%
Pancreatitis	1.0%
Mental canges	1.0%
Asymptomatic	28.1%

The location of the lesions responsible for the clinical picture of hyperparathyroidism is shown in Table 3. The lower parathyroid glands were more frequently affected, the right lower gland being affected in 35.4% of the patients and the left lower in 25.4% of cases, for a combined 60.8% of the entire series. Two adenomas were intrathyroid and two intrathymic, two in the carotid sheath and one mediastinal. Associated thyroid

Table 3.
Primary Hyperparathyroidism 1991 - 1994

Total number of patients - 130		
Pathologic location		
Right lower gland	46	35.4%
Left lower gland	33	25.4%
Left upper gland	18	13.8%
Right upper gland	17	13.1%
All glands affected	7	5.4%
Intrathyroid	2	1.54%
Intrathymic	2	1.54%
Carotid sheath	2	1.54%
Thyroid isthmus	1	0.77%
Mediastinal	1	0.77%
Not found	1	0.77%

lesionswere seen in twelve patients, for 9.2%. Three of those were thyroid carcinomas. Two patients, mother and son, belonged to a family with MEA I, both had hyperplasia of the parathyroids. Three patients were referred because of persistent hypercalcemia, all were successfully reoperated, one was pregnant at the time of the reoperation. One patient received radiotherapy to the neck 20 years prior to the development of hyperparathyroidism, a parathyroid adenoma was removed and a total thyroidectomy was performed for bilateral thyroid nodules. The pathology was benign.

At the time of surgery only the affected gland or glands were removed. An attempt was made to identify all the glands or at least the most frequent anatomical location of the glands were inspected.

The pathologic findings are shown in Table 4. A single adenoma was responsible for the hypercalcemia in the majority of the patients, 93.1%. Hyperplasia accounted for 5.4% of the cases and carcinoma was seen only once. In only one case no lesion was found in the neck to explain the hypercalcemia.

Table 4.
Primary Hyperparathyroidism 1991-1994

Total number of patients	130	
Pathologic findings:		
Adenoma		
Single	121	93.1%
Multiple	0	
Hyperplasia	7	5.4%
Chief cell	6	
Clear cell	1	
Carcinoma	1	
No lesion	1	
Associated thyroid lesions	12	9.2%

The patients have been followed for variable periods of time. Almost all of the patients have remained normocalcemic. The complications are shown in Table 5. Transient hypacalcemia was seen in three patients, one went to develop permanent hypocalcemia. Interestingly the patient who remained hypocalcemic had a thyroid operation about 20 years prior to developing hyperparathyroidism. No significant parathyroid lesion was found except a small intrathymic adenoma. The patient developed hypocalcemia even though she has normal parathyroid hormone levels. Persistent hypercalcemia was seen in three patients, including the one in whom no lesion was found. One of these patients was re-explored and an adenoma was removed and one remains hypercalcemic. Recurrent hypercalcemia was noted in one patient, who is presently suffering from pulmonary insufficiency and further surgery is not recommended. The operative mortality was zero.

Table 5.
Primary Hyperparathyroidism 1991 - 1994

Total number of patients	130
Complications:	
Transient hypocalcemia	3
Permanent hypocalcemia	1
Persistent hypercalcemia	3
Recurrent hypercalcemia	1
Renal colic	1
Hematoma	1
Reoperation	1
Mortality	0

DISCUSSION

In the private practice setting a very limited number of laboratory tests are used in the diagnosis of primary hyperparathyroidism as opposed to an academic center. The author does not recommend the use of localizing tests, since they are expensive and not better than an experienced neck surgeon. (3,4,5) An experienced surgeon identifies the diseased parathyroid glands in 95% of the cases during the initial operation and in 62% of the patients at reoperation. Localizing tests such as CT scan, thallium-technetium substraction scanning, sonogram or arteriography are recommended only for reoperation. (6,7)

Most of our patients (72%) were symptomatic while 28% were asymptomatic. Significant mental changes and pancreatitis was seen only once.

The most frequent pathologic findings was an adenoma. Multiple adenomas were not found. Some people believe that multiples adenomas do not exist. (8,9) Carcinoma of the parathyroid is also very rare, (10) seen only once in our series, the patient was lost to follow up ten years after surgery.

The association of hyperparathyroidism to thyroid lesions have been reported to be seen in 10% of the patients.(11) In this group twelve patients (9.2%) had associated thyroid tumors, either benign or malignant.

A total of 130 patients in 24 years is not an exceedingly large series but is nevertheless significant for a single physician. As way of comparison at the University of Puerto Rico Hospital, a tertiary institution, we have seen 128 patients from 1960 to 1990. In addition 46 patients were operated upon from 1990 to 1994. The author has also operated the majority of those patients. It is evident that an increase in the number of patients diagnosed and submitted to surgery has been seen lately.

The surgical results were excellent, the cause of hyperparathyroidism was identified in almost all the patients. The rate of complications was small, only one patient developed persistent hypercalcemia, one patient had persistent hypocalcemia and only one required reoperation. A hematoma not requiring drainage was seen in the entire series. There was no mortality.

Resumen: Se presentan los resultados en el manejo quirúrgico de hiperparatiroidismo por los pasados 24 años. La lesión más frecuente continúa siendo el adenoma de la paratiroide. Las glándulas inferiores son las que más frecuentemente se afectan, siendo la glándula inferior derecha la que presenta mayor incidencia de tumor. La incidencia de hiperplasia y carcinoma de la paratiroide es similar a lo informado en la literatura médica. La glándula afectada fue identificada en la gran mayoría de los casos. El número de complicaciones es significativamente bajo con ninguna mortalidad. La utilización de pruebas para localizar el tumor no son recomendadas para la primera exploración del cuello. Aún utilizando un mínimo de pruebas se pueden obtener resultados satisfactorios.

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Artículos Originales:

El Renacimiento de la Prostatectomía Perineal en la era de la Linfadenectomía Laparoscópica

Por: Rafael Angel Ruiz Quijano, M.D., FACS
Edgardo Martorell Vincenty, M.D.

Resumen: La prostatectomía radical se ha convertido en la normativa dorada del tratamiento para cáncer de próstata localizado. Con la introducción de la linfadenectomía laparoscópica para el estadío de cáncer de próstata en 1991, ha resurgido el interés en el abordaje perineal para la prostatectomía radical. Históricamente, al abordaje perineal ha demostrado tener menos morbilidad que su contraparte retropúbica. En este artículo los autores informan su experiencia de noventiocho (98) pacientes con cáncer de próstata localizado, T2B (o menos) que se les practicó la linfadenectomía laparoscópica. De éstos, 83 subsiguientemente se sometieron a prostatectomía radical perineal. El seguimiento promedio de este grupo de pacientes fue de 16.5 meses. Se discuten además, los resultados clínico patológicos de este grupo de pacientes y además se comparan con los resultados de prostatectomía retropúbica radical informados en la literatura.

En conclusión: (1) la linfadenectomía laparoscópica, junto a la prostatectomía perineal, es menos mórbida con una recuperación más rápida que el abordaje retropúbico. (2) a medida que nuevos métodos se desarrollan para predecir el estado de los nódulos pélvicos en estos pacientes, reservando la linfadenectomía para aquellos pacientes de alto riesgo de tener o desarrollar metástasis a los nódulos pélvicos, la prostatectomía perineal con la linfadenectomía pélvica laparoscópica se está convirtiendo en el manejo más actualizado de pacientes con cáncer de próstata localizado.

INTRODUCCION

Carcinoma de la próstata constituye hoy día un problema de salud pública pues es la primera malignidad diagnosticada y la segunda causa de muerte por cáncer en hombres mayores de 50 años[1]. En el 1991 se registraron 1670 casos nuevos y 495 muertes por esta condición en P.R.[2] Gracias a las pruebas del PSA su diagnóstico actualmente se logra hacer en >65% en etapas quirúrgicamente erradicables[3]. Debido a los pobres resultados de otras opciones en el manejo de CaP la prostatectomía radical se ha convertido en el tratamiento de mayor potencial curativo (normativa dorada) del tratamiento de esta condición[4,5].

Proponentes de "observar y esperar" ("OyE") argumentan que en la actualidad no se ha probado que terapia alguna pueda alterar el curso natural de la enfermedad. Sin embargo, cuando se hace un análisis crítico de los informes en la literatura médica de la experiencia con "OyE" aproximadamente a el 80% de los pacientes les progresa la enfermedad en <2 años[6] y hasta el 75% necesitan tratamientos paliativos de síntomas (ej. sangramiento, obstrucción, dolor óseo) y otras complicaciones de la enfermedad[7]. Esto constituye morbilidad importante.

Johansson y asoc.[8] reclaman que "OyE" es aceptable pues el 53% de los pacientes están vivos-libres de enfermedad a los 10 años. Sin embargo, Aus y asoc. encontraron una mortalidad de 68% por CaP en pacientes con enfermedad localizada inicialmente si solo se observan y que la mortalidad por CaP bajaba al 50% solamente en pacientes >75 años[9].

Con el advenimiento de la linfadenectomía pélvica laparoscópica (LPL) a partir del 1991[10], resurge el interés en el abordaje perineal como alternativa de manejo para CaP localizado. Históricamente esta ruta se ha caracterizado por tener una morbilidad menor que el abordaje retropúbico. Este último es el más comúnmente usado en la actualidad.

En este artículo se informa la experiencia de los autores con 98 pacientes así tratados. Es la contención de los autores que la combinación de estos 2 abordajes es la opción quirúrgica preferida de mayor actualidad en el manejo de CaP.

METODOS Y MATERIALES

Se revisaron los expedientes clínicos de oficina ambulatorios y de hospitalización de 98 pacientes con CaP clínicamente T2b o < del 13/1/92 al 27/7/94. Estos fueron operados en los hospitales Hermanos Meléndez (HHM) y Matilde Brenes (HMB) de Bayamón. A 15 de 98 pacientes se les detectaron nódulos con CaP metastático (N+) por medio de (LPL). Por tal razón a 83 se les hizo la prostatectomía radical perineal (PRP) de 2 a 16 semanas post (LPL). La edad promedio fue 67.2 (47-79) años. El seguimiento promedio fué de 16.5 (3-31) meses (ver tabla #1).

Tabla #1

# Total de Pts.	98
# de pts. (N+)	Por (LPL) 15
# pts. con (PRP)	83
Edad pts.	67.2 (47-79) años
Seguimiento	16.5 (3-31) Meses

Resultados:

De los 15 pacientes con (N+), 12 fueron detectados por cortes congelados y 3 por permanentes para un 20% de falsos(+). El grado histológico fue clasificado de acuerdo a Gleason (CG) y fue: 6 pacientes con (Gg)8, 4 con (Gg)7 y 2 con (Gg)5, respectivamente. Estos fueron excluidos de la prostatectomía perineal. (ver tabla #2).

Tabla #2

Pacientes (N+)	15
Cortes	
congelados	12
permanentes	3
% Falsos (+)	20%
# pts. Gleason 5	5
# pts. Gleason 7	4
# pts. Gleason 8	6

El promedio de nódulos extraídos fue 11 (2-22) en los 98 pacientes sometidos a (LPL). El tiempo operatorio promedio fue de 99 (55-185) mins. Ambas cifras comparan favorablemente con otras informadas en la literatura (ver tabla #3). La pérdida sanguínea fue <50 ccs. y la estadía hospitalaria promedio 1.23 (1-4) días versus 4.7 para la linfadenectomía abierta[10]. Ningún paciente requirió transfusiones para la (LPL). Un paciente fue abierto para corregir una laceración vesical. El resto de las complicaciones se resolvieron endolaparoscópicamente, la laceración de la vena iliaca inclusive (ver tabla #3).

A 83 pacientes se les hizo la (PRP) de 2 a 16 semanas pos (LPL). El tiempo de hospitalización promedio fue de 4.25 (3-17) días. El drenaje "penrose" se removió en 2-3 días postop. y el 95% de los pacientes se dieron de alta al 3er día postop. El foley fue removido en 12 (9-14) días si el cistograma de micción no mostraba escape del contraste radiográfico. Dos laceraciones rectales fueron cerradas primariamente en 2 capas de suturas y se procedió con la (PRP) sin prolongación de la estadía hospitalaria.

Veintiocho (28) de ochentitrés (83) pacientes recibieron 2.6 (1-6) unidades de sangre para un 33% de transfusiones en >90% con sangre autóloga recobrada preoperatoriamente. Seis (6) pts. requirieron uretrotomía interna (TUI) para estrecheces benignas en cuatro (4) y dos (2) de éstos con CaP recurrente. Un paciente sufrió de rabdomiólisis con necrosis tubular aguda la cual resolvió a los 14 días postop. sin necesitar hemodiálisis. Un paciente tuvo pulmonía y uno

Tabla #3
Resultados clínicos de linfadenectomía laparoscópica en pacientes con cáncer de próstata

Autores	# Pts.	# Nódulos	# Pts. (N+)	Tiempo OP (mins.)	Estadía Hospital	Complicaciones
Schuessler et al J Urol 1991	12	7.6	nr	147	nr	0
Winfield et al J Endour 1992	66	10	13	150	36hrs	hemorragia
Parra et al J Urol 1992	12	10.7(5-16.3)	3	185	24-48 hrs.	0
Kozminski et al J Urol 1992	105	10.6	nr	162	24-48 hrs.	linfoceles hemorragia
Griffith et al North Am. Urol Clin	31	11.3	1	184	24	0
Ruiz Quijano et al	98	11(2-22)	15	99(55-185)	48 hrs.	laceraciones vesicales 3

requirió exploración de la herida bajo anestesia para remover un drenaje retenido. El 97% de los pacientes recobraron la continencia urinaria, el 84% totalmente, 13% utiliza de 1 a 3 minitoallas al día para controlar un leve gotereo y solo 2 requirieron un implante de un esfínter artificial para incontinencia severa. El 90% recobró la continencia en los primeros 6 meses postoperatorios (ver tabla #4).

Tabla 4.
Resultados de la Prostatectomía

Radical Perineal	
# Total de Pacientes	83
# Días en hospital	4.25 (3-17)
# Complicaciones (%)	x10 (12%)
Estrecheces uretrales	6
Rabdomiólisis con fallo renal agudo	1
Pulmonía	1
Incontinencia severa	2
# pacientes transfundidos (%)	28(33%)
# de unidades de sangre	2.6 (1-6)

De 15 pacientes preoperatorios, 12 están activos sexualmente postoperatorio. De éstos, 8 ayudan sus erecciones con inyecciones intracavernosas de PGE1 y 4 están potentes 100%. Tres (3) están inactivos.

De 18 pacientes que recibieron ablación androgénica por 3-4 meses antes de la (PRP) para reducir la masa tumoral y prostática, todos tuvieron los márgenes limpios de CaP.

DISCUSION

Gracias al advenimiento del antígeno protatoespecífico (PSA), en uso combinado con el examen digital rectal (EDR) y la ultrasonografía transrectal prostática (USTRP) ha habido un aumento importante en el número de pacientes diagnosticados con CaP en etapas tempranas y quirúrgicamente erradicables[3].

Antes de llevar a cabo la extirpación total de la próstata, es recomendable evaluar con la mayor exactitud el estado de los nódulos pélvicos. Actualmente el estadío quirúrgico laparoscópico es la manera más exacta de evaluarlos (al compararse con MRI, CT y linfangiogramas pélvicos) y a la vez menos mórbidos que la cirugía abierta[11].

A partir del 1991, Schuessler y otros[10,11,12,13] han descrito el abordaje laparoscópico como alternativa viable a la linfadenectomía abierta. Nuestros resultados comparan muy favorablemente con los informados en la literatura (ver tabla #3).

La morbilidad, recuperación y estadía hospitalaria menor del abordaje laparoscópico lo hacen el método de elección más ventajoso para el paciente. Sin embargo, éste no ha ganado muchos adeptos entre los urólogos pues aprender esta técnica toma tiempo, requiere un número significativo de casos para dominarla y es más costosa[14] para el hospital. Otros factores negativos citados son el peligro potencial de derramar células cancerosas si los nódulos tienen CaP y el lastimar estructuras vasculares y otras vísceras.

Ante los resultados frustrantes de la radioterapia[4,5] y la ausencia de quimioterapia efectiva en el manejo de CaP avanzado, la detección temprana en pacientes con una espectativa >10 años junto a la prostatectomía radical se han convertido en la normativa dorada del manejo de CaP.

En la actualidad la mayoría de los urólogos están más familiarizados con la ruta retropúbica y se han acostumbrado a la técnica de preservar los nervios de la erección descrita por Walsh[15].

Históricamente la ruta perineal se ha asociado con menor morbilidad que la retropúbica. Sus ventajas son: 1) menor pérdida de sangre 2) anastomosis y vesicouretral más exacta 3) ausencia de incisión abdominal con ambulación inmediata y recuperación más rápida 4) los nervios se ven anteriores y por lo tanto más fácilmente 5) es el complemento natural de la (LPL).

En una serie de 189 pacientes con CaP localizado sometidos a prostatectomía radical retropúbica, Stamey notó que el 43% de los pacientes (39 de 89) que tuvieron márgenes positivos fue en el ápice prostático y el 16% en la pared rectal. El cree que esto ocurrió debido a planos pobremente separados durante la disección quirúrgica dejando CaP residual en estas áreas[16]. Es precisamente a través de la ruta perineal que estos planos pueden separarse mejor disminuyendo así el potencial de dejar CaP residual en la fosa periprostática.

Los que no favorecen el abordaje perineal con razón reclaman que hacen falta 2 incisiones para poder también exponer los nódulos pélvicos y que no hay resultados conocidos de la potencia al preservar los nervios por la ruta perineal. Paulson reclama un 77% de potencia postoperatoria (17 de 22 pacientes con potencia preoperatoria) en su serie de 121 pacientes[17]. Nuestros resultados son similares (ver arriba).

La incidencia de márgenes (+) y el % de incontinencia postoperatoria son similares en ambos abordajes. Sin embargo los tiempos operatorios, la pérdida de sangre, el # de transfusiones y las estadías hospitalarias son menores en pacientes operados por el periné[17,18,19]. Esta también ha sido la experiencia de los autores.

Informes recientes muestran una incidencia de (N+), probablemente debido a un diagnóstico más temprano[20]. Debido a ésto se han sugerido nomogramas y ecuaciones correlacionando el PSA y el (Gg) para predecir el riesgo de (N+) sin linfadenectomía[21,22]. No obstante en 5 de 15 pacientes con (N+) de nuestra serie, el PSA preoperatorio fue <15 y el grado histológico del Gleason fue 5; por lo tanto, estos métodos no aplican en nuestra experiencia.

Mientras la experiencia anterior no sea ampliamente corroborada por otros, la linfanectomía se debe hacer en todo candidato para cirugía radical o radioterapia, sobretodo si su espectativa vital es > de 10 años.

Después de caso 2 décadas; con el advenimiento de la LPL, la prostatectomía perineal radical está resurgiendo como alternativa a la retropúbica. Al surgir métodos más exactos de predecir (N+) sin cirugía al abordaje perineal se afianzará más como el preferido (state of the art) para el manejo de CaP localizado.

CONCLUSIONES

1) En la era post-PSA la cirugía radical es la normativa dorada para el tratamiento de CAP localizado.
2) La ruta perineal es comparable con la retropúbica para controlar cáncer y en los % de incontinencia postoperatoria.
3) La ruta perineal crea menos morbilidad que la retropúbica.
4) Con el desarrollo de métodos no quirúrgicos de predecir (N+) obviándose la necesidad de una segunda incisión el abordaje perineal está resurgiendo como la normativa dorada del manejo de CaP localizado.

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COMENTARIOS

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Los autores presentan sus experiencias en una serie de 98 casos de carcinoma de la próstata a quienes se les practicó, a 83 de ellos, una prostatectomía radical por vía perineal, sin mortalidad y con una morbilidad baja. Entiendo que esta es la serie más larga de casos de cirugía radical de la próstata presentada en Puerto Rico y sin duda alguna, aborda un tema de gran relevancia dado a la alta incidencia de esta enfermedad y la gran controversia que se ha suscitado, a nivel internacional, sobre el manejo de este tumor en sus etapas tempranas. Felicito a mis compañeros urólogos, Ruiz Quijano y Martorell, por envolverse en la difícil tarea de evaluar su faena y presentar a la comunidad médica sus resultados y opiniones. Necesitamos más estudios de este tipo.

El abordaje perineal a la próstata es una técnica antigua que había estado en desuso hasta hace poco cuando, usando los términos de los autores, la operación ha tenido un renacimiento gracias al desarrollo de la linfadenectomía pélvica laparoscópica que permite estudiar los ganglios linfáticos de esa área sin tener que hacer otra incisión separada. Como indican los autores, esta operación permite una hábil disección de la glándula prostática con una morbilidad baja, posiblemente menor que la de la prostatectomía retropúbica, que es la intervención más usada en el tratamiento quirúrgico del cáncer de la próstata localizado.

Creo que el artículo estaría más completo si los autores hubieran incluido, junto a la otra data que nos presentan, información sobre el grado histológico, los niveles de PSA pre y post operatorio y la presencia o ausencia de invasión por cáncer en los márgenes quirúrgicos y la cápsula prostática, en todos los pacientes intervenidos. Sugiero además que revisen el porciento que presentan de pacientes potentes después de la operación ya que según sus propios datos fueron 4 de 15, 27% y no 77% como reclaman en su discusión.

La inferencia de que la ruta perineal disminuye el potencial de dejar cáncer en la fosa periprostática no se comprueba en el artículo sometido ni se corrobora con referencias de la literatura médica. Es mi prejuicio personal, que la incidencia de tumor residual y márgenes positivos depende mucho más del estadío y grado de invasión del tumor, que de el abordaje quirúrgico.

Agradezco la oportunidad de participar en esta actividad y espero haber cumplido con su encomienda.

REACCION DE LOS AUTORES

Queremos agradecer al Dr. Fortuño sus comentarios alentadores y positivos sobre nuestro trabajo y experiencia presentada en este artículo. Nuestro entusiasmo con ambos abordajes responde a la filosofía actual de la cirugía mínimamente invasiva, en donde lo más importante es reducir la morbilidad del paciente sin reducir la efectividad del tratamiento. El Dr. Fortuño reafirma nuestro prejuicio a favor del abordaje perineal cuando reconoce que la incidencia de tumor residual y de márgenes positivos depende más del estadío del tumor que del abordaje quirúrgico. En nuestra serie, catorce de ochentitrés pacientes (14 de 83): o sea; el 17% tuvieron márgenes positivos. Esto es muy por debajo del 40% informado en la literatura. Interesantemente, al año, estos 14 pacientes tenían el PSA > .15 (.15 a 10.2). De éstos, seis (6) han recibido radioterapia (recurrencias probadas por biopsias), cinco (5) están en observación espectativa y tres (3) están en ablación androgénica (las biopsias fueron negativas). Ninguno de éstos recibieron ablación androgénica

preoperatoria. En 69 de los 83 pacientes se pudo correlacionar el grado de Gleason, el PSA preoperatorio con el estadío patológico (ver tabla 5)

Tabla 5.

Grado de Gleason	# Pacientes	PSA preoperatorio	T patológico
	1	7.5	1B
2-4	16	11.8(5.1-28)	2A
	9	7.8(2.3-9.3)	2B
	0	0	1B
5-7	12	14(.17-36)	2A
	18	12.8(.5-6.1)	2B
	13	12.5(2.9-16.4)	3
8-10	0	0	

Aceptamos la corrección en el % de pacientes potentes postoperatorios. No obstante vale la pena señalar que 7 de los 15 pacientes potentes preoperatoriamente tienen erecciones, aunque solamente 4 están activos sexualmente.

Summary: Radical prostatectomy has become the gold standard treatment for localized prostate cancer. With the introduction of Laparoscopy Lymphadenectomy for Staging of Prostate Cancer in 1991, interest in the perineal approach to radical prostatectomy has been renewed. Historically, the perineal approach has proven to be less morbid than the retropubic counterpart. Herein, the authors report their experience with 98 male patients with clinically localized T2B (or less) Cancer of the Prostate who underwent Laparoscopic Lymphadenectomy of which 83, subsequently, had a radical perineal prostatectomy. The mean follow up of this group of patients was 16.5 months. Clinicopathological results are discussed and compared with the results of radical retropubic prostatectomy in the literature.

In conclusion: (1) laparoscopic lymphadenectomy with radical perineal prostatectomy are less morbid, with a faster recovery rate than the standard radical retropubic prostatectomy approach. (2) as better nonsurgical methods evolve in predicting the status of the pelvic lymph nodes, reserving laparoscopic lymphadenectomy for patients with high risk of developing lymph nodes' metastasis, the perineal prostatectomy and laparoscopic lymph node dissection are becoming the state of the art treatment in patients with localized prostate cancer.

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Reporte de Casos:

Radiologic Manifestations of Hyperparathyroidism

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Introduction

Hyperparathyroidim usually affects the bones, kidneys, gastrointestinal tract and ocassionaly the central nervous system. Presently most of the cases of hyperparathyroidism are detected early in the course of the disease.

Demineralization and osteoporosis occurs in all cases of hyperparathyroidism as demonstrated by bone density and radioactive strontium studies. Nevertheless, radiologic changes are seen only in the presence of advanced disease. The frequency of bone x-rays findings reported vary in the different series of patients in whom hyperparathyroidism is diagnosed.

Only rarely, the lesion manifests itself producing changes that can be detected by x-rays. (1,2,3)

In the overwhelming majority of the patients the clinical symptoms are secondary to an adenoma (85%) of the parathyroid glands, in 10-12% is due to hyperplasia of all four parathyroid glands and only rarely (3%) of the patients the cause is a parathyroid carcinoma. (4) Multiple adenomas are very rare. (5, 6)

The purpose of this paper is to present for patients who demonstrated radiological findings produced by the primary lesions as well as advanced bone disease.

Case Presentations

1. AVC - this is a 41 year old female who in September 1970 presented with anorexia, loss of weight, polydipsia, polyuria, constipation, bony aches particularly at the pelvis and lacrimation or burning of the eyes. No neck masses were felt on physical examination. Her serum calciums ranged from 16.4-19.8 mgs/dl, the phosphorus levels ranged from 1.6-2.9 mgs/dl. A chest film revealed a mediatinal mass (Fig. 1), the intravenous pyelogran showed nephrocalcinosis, x-rays of the pelvis demonstrated a pelvic cyst (Fig. 2) and the bone scan showed generalized demineralization. On September 21, 1970 the neck



Fig. 1 - Patient AVC *Preoperative chest film demonstrating a right paracardiac mediastinal mass.*



Fig. 2 - Patient AVC *X-rays of the pelvis showing a pelvic cyst.*

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was explored. No neck adenomas were detected. A mass originating in the lower neck and extending into the anterior mediastinum was identified. The sternum was divided, a large mediastinal parathyroid tumor was removed. The lesion measured 12 x 5 x 3 cm and weighed 113 grams. (Fig. 3) Histologic examination revealed a monotonous field of chief cells. A post-operative chest film shows absence of the previously described mass. (Fig. 4) The patient remained asymptomatic until 1990 when she was found to have mild hypercalcemia. She is under close observation by the endocrine group.



Fig. 3 - Patient AVC *Large mediastinal tumor measuring 12 x 5 x 3 cms and weighing 113 grams.*

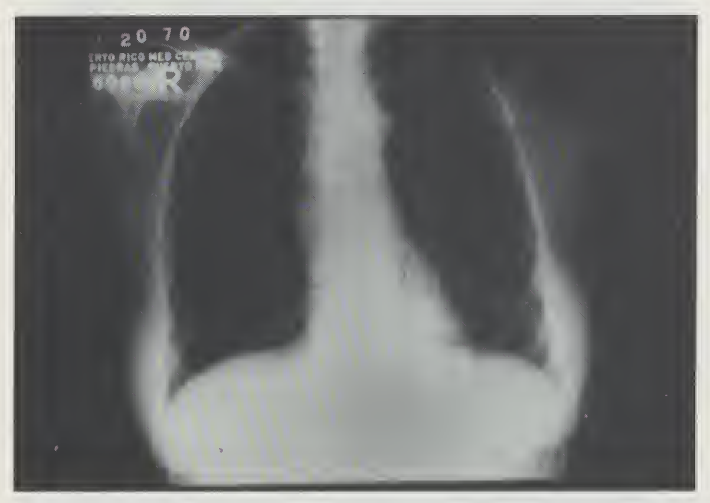


Fig. 4 - Patient AVC *Postoperative chest film showing the absence of the mediastinal mass.*

Comment

This patient presented with a large mediastinal mass due to the presence of a parathyroid adenoma. At that time the diagnosis of hyperparathyroidism was made by excluding other causes of hypercalcemia, since there was no PTH assays nor sonogram or CT to be used in the diagnosis. Nowadays, hyperparathyroidism is diagnosed early with mild or no symptoms al all. This tumor weighed one hundred times more than the usual parathyroid lesion. It is the second largest tumor reported in the medical literature.

She also presented a pelvic bone cyst, only rarely seen at the present time.

2. FMG - this is a 41 year old female who in July 1972 presented with bony pains, headache and loss of memory. On physical examination a left lower neck mass was felt. The serum calcium ranged from 11.2-18.8 mgs/dl and the serum phosphorus ranged from 1.2-3.6 mgs/dl. A chest film revealed compression and deviation of the trachea to the right side. (Fig. 5) A barium swallow demonstrated an identation on the left side of the esophagus. (Fig. 6) On July 7, 1972 an en-block removal of the left thyroid together with a parathyroid tumor including the recurrent laryngeal nerve was done. Pathologic examination showed a cystic carcinoma of the left lower parathyroid weighing 17.4 grams and measuring 3.5 x 3 x 2 cms. (Fig. 7) Histologic examination showed invasion of the capsule, dense fibrous septae and vascular invasion by the tumor. The patient is still alive without evidence of recurrence of the tumor nor hypercalcemia.

Comment

This patient presented with the classical clinical picture of parathyroid carcinoma: a palpable mass



Fig. 5 - Patient FMG *Chest film demonstrating deviation of the trachea toward the right side.*



Fig. 6 - Patient FMG *Barium swallow showing an indentation of the esophagus by a mass on the left side of the neck.*



Fig. 7 - Patient FMG *Pathologic specimen showing a carcinoma of the parathyroid gland measuring 3.5 x 3 x 2 cm and weighing 17.4 grams.*

and hypercalcemia above 15-16 mgs/dl. The criteria for malignancy are invasion of sorrounding tissues, capsular invasion, dense fibrous septae, vascular or lymphatic metastasis, the presence of mitotic figures and visceral metastasis.

3. CJRA - this is a 44 year old male patient with hypercalcemia since 1986 and nephrolithiasis. He also had hypertension. The highest calcium was 12 mgs/dl, phosporus 2.1 mgs/dl, urine calcium 540 mgs /24 hours, PTH was elevated 2419 pg/ml (normal 50-330). Neck sonogram and CT were negative. The bone density was 2.85 standard deviation below the mean for aged-matched normal subjects. A chest film showed a 4.5 x 2.0 cm soft tissue mass in the right paratracheal region. (Fig. 8) A CT of the chest confirmed the presence of this mass located behind the superior vena cava, cystic in nature. (Fig. 9) An MRI of the chest was interpreted as a benign cystic lesion in the mediastinum. (Fig. 10)



Fig. 8 - Patient CJRA *Chest film showing a soft tissue mass in the right paratracheal region.*

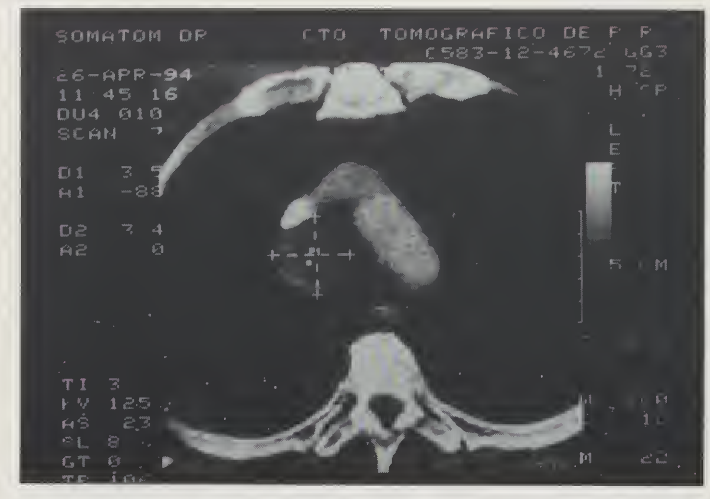


Fig. 9 - Patient CJRA *CT scan of the chest confirms the presence of a cystic mass behind the superior vena cava.*



Fig. 10 - Patient CJRA *An MRI shows a cystic lesion in the right superior mediastinum.*

On May 17, 1994 the neck was explored, no parathyroid lesions were found and the mediastinal lesion was determined that could not be reached through the neck. A median sternotomy was done and the cystic lesion was removed. The pathologic diagnosis was interpreted as a parathyroid adenoma and thymus tissue. The patient recovered uneventfully. The serum calcium is normal.

Comment

This patient presented with a mediastinal tumor seen on a simple chest film. Althoug the lesion had a cystic component it was responsible for the clinical picture of hyperparathyroidism. The patient became asymptomatic and the calcium levels are normal.

4. RPS - this is a 36 year old male patient who was evaluated for hypercalcemia, renal stones and bony pains. X-rays showed erosion of the tip of the clavicle, lytic expansile lesions of the mandible and skull (Fig. 11) and subchondral cysts of the left glenoid.



Fig. 11 - Patient RPS *X-rays showing lytic lesions of the mandible and skull.*



Fig. 12 - Patient RPS *X-rays demonstrating subchondral cysts of the left glenoid region.*

(Fig. 12) An intravenous pyelogram showed nephrolithiasis. The highest calcium was 14 mgs/dl. PTH was elevated. On may 7, 1992 the neck was explored, a large right lower parathyroid tumor was found and removed, the remainder glands were small. The specimen removed measured 3.3x 1.7x 1.5 cm. The pathology was interpreted as parathyroid adenoma with fibrosis, suspicious of carcinoma, but there was no pleomorphism, mitosis or vascular invasion. Postoperatively the calcium returned to normal levels. The patient is alive and asymptomatic three years after surgery.

Discussion

We have presented four patients with advanced hyperparathyroidism as demonstrated by severe bone lesions in two patients. Three of the four patients presented with radiological findings produced by the tumor itself. This is very rare since the usual parathyroid lesion, an adenoma, is very small in size.

With an increase awareness of this disease and the routine determination of calcium in laboratory tests the diagnosis of hyperparathyroidism is more frequently done early in the disease and many patients are asymptomatic.

There is a scarcity of reports in the medical literature demonstrating radiological findings produced by the parathyroid tumor itself.

The patient with the large mediastinal parathyroid adenoma is alive 24 years after surgery. Carcinoma of the parathyroids is a rare disease, seen in only 2-3% of patients with primary hyperparathyroidism. The best and only chance for cure of parathyroid carcinoma is obtained if the diagnosis is suspected at the time of the initial operation. In parathyroid carcinoma patients the average serum calcium is 15.2 mgs/dl. In a series

of 70 patients with carcinoma of the parathyroid the average age was 44.3 years. Local recurrences were seen in 30 % of the patients and 31% succumbed to the disease within 5 years. (7) Our patient with parathyroid carcinoma is alive and asymptomatic 22 years after the operation. This patient also presented with loss of memory.

Two of our patients with mediastinal adenomas had radiological findings seen on chest films. Both required an sternotomy for the removal of the parathyroid lesion.

Two patients presented with advanced x-ray findings as demonstrated on bone surveys. These advanced lesions are very infrequent nowadays.

Resumen: Hemos presentado cuatro pacientes con hyperparatiroidismo. En tres de ellos la lesión responsable de los síntomas produjo los cambios radiológicos. Dos pacientes tenían tumores mediastinales detectados en radiografías simples de pecho y un tercer paciente presentaba una indentación en el esófago producida por un tumor de paratiroide. Dos pacientes tenían cambios significativos en los huesos detectados en las radiografías, hallazgos raros al presente. Los cuatro pacientes fueron sometidos a operación, la lesión responsable del hiperparatiroidismo fue removida con resultados excelentes. Una revisión de la literatura revela una cantidad exigua de artículos donde el tumor de paratiroide sea el que propiamente produce los cambios radiológicos.

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Bacillary Angiomatosis: Microbiology, Histopathology, Clinical Presentation, Diagnosis and Management

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Summary: Bacillary angiomatosis is known to be caused by a rickettsial organism; *Rochalimaea henselae.* This causative agent has been compared with different microorganisms and clinical conditions that appear in similar settings buy have been clearly differentiated from them; e.i. Cat-scratch disease *(Afipia felis), Bartonella bacilliformis,* other *Rochalimaea* sp., Kaposi's sarcoma, Lobular capillary hemangioma, Angiosarcoma, and Epithelioid hemangioma.

Clinically the bacillary angiomatosis (BA) skin lesions vary from a single lesion to thousands. The cutaneous lesion appears as a bright-red round papule, subcutaneous nodule, or as a cellulitic plaque. When the lesion is biopsied it tends to blanch-out, bleed, and cause pain. The patient might present with signs and symptoms of chills, headaches, fever, malaise, and anorexia with or without weight loss. The extracutaneous lesions found in BA tend to be from multiple organs affecting from the oral lesions to anal mucosal lesions to widespread visceral lesions. The sites of preference for BA lesion manifestation tend to be the liver, spleen, lymph nodes, and bone. To diagnose bacillary angiomatosis the physician should prepare a differential diagnosis based primarily on its histopathological and clinical characteristics. To confirm the results from the stain, electron microscopy can identify the bacillus and pin-point the diagnosis of bacillary angiomatosis.

The lesions presented by BA respond well to therapy with erythromycin 500 mg four times daily for a duration of 2 weeks to 2 months. In case of intolerance to erythromycin the second line of drug that successfully treats the BA bacillus is doxycyline. If relapses of the BA lesion recur, then a prolonged antibiotic therapy is necessary and in AIDS patients the duration may be extended as life-long suppressive therapy.

Introduction

Bacillary angiomatosis (BA) is a disease first described in immunocompromised patients with human immunodeficiency virus (HIV) by Stoler and colaborators in 1983. He described the disease as an infectious disease of the skin and viscera presenting with vascular leions and clinically associated with multiple subcutaneous tumors accompanied by sweats, fever, and weight loss[1]. The nomenclature given to such a disease was derived directly from its physical and histological characteristics. Bacillary is derived from its histological characteridtics from the presence of its clusters of bacillus organisms demonstrated primarily through a special stain, Warthin-Starry silver stain or via observation from electron microscopy of patients affected with Bacillary angiomatosis[2]. The angiomatosis nomenclature is derived from its histological vascular dissemination and its clinical pattern of numerous superficial and/or deep cutaneous vascular nodules or papules in immunocompromised HIV-patients.

Bacillary angiomatosis historically holds certain similar features with other organisms that are present in immunocompromised HIV-patients. Histologically, a proliferation of epithelioid endothelial cells, neutrophilic infiltrations, and masses of Warthin-Starry-positive bacteria were found, establishing BA as an infectious vascular process, clinically and histologically similar to the chronic form of bartonellosis[3]. Kaposi's sarcoma was originally thought to be the representative variant of BA since its lesions were circumscribed to similar skin manifestations and HIV-patientes, but several cases illustrated that while the two conditions may occur simultaneously, they are clinically, histologically, and pathologically distinct and respond to treatment differently[3]. Though the etiology of bacillary angiomatosis has stumbled from investigation to investigarion to find its agent of origin since its discovery, it is now known to have two

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causative organisms of BA, *Rochalimaea henselae* and *Rochalimaea quintana*, that have been identified and cultured. The spectrum of the disease in HIV-patients caused by these two bacteria has been expanded to include both isolated bacteremia and other additional organ systems, such as in the liver and the spleen[2].

Causative Agents

During early investigations of the disease of bacillary angiomatosis its has been postulated that BA was caused by the Cat-Scratch Disease (CSD) bacillus, recently name *Afipia Felis*[19]. Though the clinical features of CSD as currently established versus those of BA are quite dissimilar (Table 1). There is an association between *A. felis* and the BA agent with cat contact, infected lymph nodes of patients with lymphadenitis and cat exposure. Tappero et al. in a case-control study found there was a relationship between environmental exposures and BA disease in HIV patients[8]. The morphologic characteristics of BA seem equivalent to those of *Afipia felis*; however, the BA microorganism behaves in culture media more like the rickettsial pathogen, *Bartonella bacilliformis*, than to *Afipia felis*[5] (Table 1). Once the organism of BA was cultured in a nutritionally enriched media, it was recognized as an extremely fastidious gram-negative bacillus that could hardly be propagated at all[18,19,22]. To differentiate further the BA agent from other organisms, an analysis of ribosomal RNA (rRNA) and the polymerase chain reaction (PCR) war performed[6]. These experiments permitted a clear identification of the BA agents unique 16S gene suquence that belonged to a previously uncharacterized microorganism, most closely related to *Rochalimaea quintana*[6].

Rochalimaea species are small gram-negative bacilli that are part of the Rickettsiaceae genera[7]. Rochalimaea have four species associated with them; *Rochalimaea vinsonii, R. quintana, R. henselae*, and *R. elizabethae*[7].

Adapted from Adal KA, et al. *N Engl J Med* 1994; 330(21): 1509-15 from these species only two have been considered as causative agents of bacillary peliosis hepatitis and bacteremia. *R. henselae* was previously cultured from patients with bacteremia, but it wasn't identified per se until it was biopsied directly from cutaneous lesions of bacillary angiomatosis[7]. *R. henselae* has also been successfully cultured from direct plating of tissue from lymph nodes and spleen, and from serological cultures as well[7].

Clinical Features

Bacillary angiomatosis is a disease that primarily affects patients with acquired immunodeficiency syndrome (AIDS). Even though, recent studies have demonstrated evidence of bacillary angiomatosis in patients that are immunosuppressed, such as organ-transplant recipients, chemotherapy patients with malignant conditions, and patients receiving corticosteroid therapy[2].

A. Skin Manifestations

HIV infected patients usually present with subcutaneous and cutaneous vascular lesions imitating Kaposi's sarcoma[9]. Kaposi's sarcoma can be rapidly distinguished from BA due to its distinctive clinical, histological, pathological, and treatment reaction. An example of such distinction is that BA begins as papules or nodules while Kaposi's sarcoma usually

Table I.
Histological and Clinical Characteristic of BA agent, A. felis, and B bacilliformis

Characteristics	BA agent	A. felis	B. bacilliformis
Culture Media Growth	poor	good	poor
Culture Growth on Blood Media	good	poor	good
Gram Stain	no stain	Gm-	weakly Gm-
Warthin-Starry Stain	WS+	WS+	WS+
Morphology	small pleomorphic bacillus	small pleomorphic bacillus	small pleomorphic bacillus
Flagella	multiple, unipolar	single, subpolar	multiple, unipolar
Clinical Characteristics			
Dermatologic involvement	yes	sometimes	yes
Viscera involvement	yes	sometimes	yes
Lymph node involvement	sometimes	yes	sometimes
Erythromycin treatment reaction	good	poor	good

***Modified from Cockerell CJ et al. J Invest Dermatol 1991: 97: 812-7**

starts from patches to plaques and nodules. The absence of papules, macules, and plaques in most cases distinguishes BA from KS, although both disease can occur at the same time. Some other distinctions include a red rather than a purplish color for Ba, absence of angiomatous lesions to other than papular or nodular appearance; the presence of reddish, undefined plaques resembling cellulitis, and the appearance of bone lesions or masses under the skin[3] (Table II). It would be wise to advocate biopsy confirmation of all suspected KS patients with HIV infection.

are covered with an attenuated epidermis. When lesions are biopsied they tend to blanch out, and they are also associated with pain and bleeding from such biopsies. Another type of common skin lesion found in patients with bacillary angiomatosis is the subcutaneous nodule. The subcutaneous nodule is present in approximaytely 25% of these patients. The nodules appear large, deep, and without overlying skin chabge, as seen in the granulation tissue-like papule. The nodules are firm, but not indurated, and is tender to palpation in that area and if the nodule is large enough it may erode completely to the surface causing an ulcerating tumor. A third cutaneous manifestation typically seen in patients with bacillary angiomatosis is the cellulitic plaque. The percentage of patients affected with cellulitic plaques reaches between the 5% to 10% of the skin lesions[1]. These lesions tend to involve the bone, and commonly presents with erythema and tenderness surrounding the lesion. Patients sometimes present with associated signs and symptoms, such as chills, headaches, fever, malaise, and anorexia with or without weight reduction that might be associated to the skin lesions.

Table II.
Histological and Clinical Features that Differentials Bacillary Angiomatosis from Kaposl"s Sarcoma

Features	Bacillary Angiomatosis	Kaposi's Sarcoma
Histologic		
Borders	Sharply delineated	Poorly delimited in papules and macule stages; charply delimited in nodules
Endothelial Cells	Engorged, polygonal and luminal protrusion	Sindled, fascide formation; no luminal protrusion
Neutrophil count	+++, with leukocytoclastic debris	-
Vascular Space	Round	Slit-like
Lobular Capillary Proliferation	+	-
Bacterial Clusters	+	-
Warthin-Starry stain detection	+	-
Clinical		
Lesions	Bright-red round papule, nodule, or tumor, plaques are rare	Violaceous macule, patch, or plaque, regularly follows skin crevice planes
Number of lesions	1-1000's	few to numerous
Blanching	++	+/-
Bleeding	+	-
Pain	++	+/-
Erythromycin Reaction	+++	-

Modified from Adal KA, et al. New Engl J. Med 1994; 330 (21): 1509-15

Skin lesions remain the most common clinical feature in bacillary angiomatosis. They typically present as an elevated, friable, reddish granulation tissue-like papule[20]. This manifestation is present in two-thirds of patients[1]. Skin lesions may present as a cluster (sometimes ranging more than a thousand) or as a single solitary lesion and range in size from 1 millimeter to several centimeters. The total amount of lesions through time tend to increase while their size tend to reduce. The larger lesions tend to erode and stard to bleed, while the smaller lesions, histologically,

B. Extracutaneous Lesions

The extracutaneous manifestations of bacillary angiomatosis presented in patients with the human immunodeficiency virus (HIV) can be acute, but if these lesions remain undiagnosed and unattended, death might result due to local complications or devastating disseminated infection[18].

The extracutaneous lesions that are usually reported with BA are; oral lesions, nasal, conjunctiva, larynx (laryngeal obstruction), bronchial mucosa, lung, heart (cardiac lesions and endocarditis), peritoneum, diaphragm, liver & spleen (hepatosplenomegaly, liver abscesses, necrotizing splenitis, or hepatic and splenic necrotizing granulomata), lymph nodes, muscles and soft tissues, bone (bone infection), bone marrow, CNS (brain abscesses, aseptic meningitis, and unreported AIDS encephalopathy), widespread visceral lesions, and anal mucosal lesions[18]. Some authors state that they have seen patients who presented first or exclusively with signs and symptoms referable to extracutaneous sites such as the liver, lymph nodes, and bone[1].

In 1993, Haught WH, and collaborators et al. described of a patient with nightsweats, fever, abdominal pain, pleural effusions, and asymmetric peripheral lymphadenopathy[10]. The patient underwent a Computed Tomography (CT scan) of the chest and abdomen that revealed an extensive mediastinal, retroperitoneal, mesenteric, and right inguinal adenopathy. The inguinal lymph node parenchyma, microscopically, was replaced largely by a vascular proliferation that consisted of various-sized blood vessels, interstitial connective tissue and occasionally spindle-shaped cells lying between the blood vessels. These vascular changes permitted to the distinguish this lymphadenopathy from others and directed the authors towards the use of the Warthin-Starry stain in the lymph nodes tissues and the use of an electron microscope, resulting in a positive stain in bacillary form that confirmed a diagnosis of massive visceral lymphadenopathy. The patient was placed in a regimen of 500 mg of erythromycin four times a day for a period of one week. By the second week, the lymphadenopathy resolved completely.

Several patients have come to medical attention for peripheral lymph node enlargement, either painful or painless. Some image studies performed in some patients have shown abdominal or retroperitoneal lymphadenopathy. The diagnosis of BA is then made by excisional lymph node biopsy[1]. The diagnosis is also possible through fine needle aspiration biopsy, where the specimen is later stained with Warthin-Starry stain.

Bone pain might be found in several patients with involvement of the bone by bacillary angiomatosis, but in HIV patients this is rare. In an AIDS patient, the presence of a lytic bone lesion should raise a strong suspicion of a Rochalimaea infection as its cause[18]. The diagnosis of such osteolytic lesions are possible through conventional radiographs or if in doubt through a bone scan[11].

The most common site for extracutaneous lesions in BA are the liver and the spleen. The clinical hallmark of hepatic disease is hepatomegaly, sometimes massive, developing over a period of weeks to months[12]. Another hepatic disease closely related to bacillary angiomatosis is Peliosis hepatitis. Peliosis hepatitis is a rare condition characterized by cystic, blood-filled spaces in the hepatic parenchyma. Recent reports have identified this disease in HIV-infected patients that were previously diagnosed with bacillary angiomatosis[12]. It usually presents with gastrointestinal symptoms, such as; nausea, vomiting, diarrhea, or abdominal distention. Other symptoms also associated with peliosis hepatitis are fever, chills, and hepatosplenomegaly. It is believed that HIV-associated bacillary peliosis hepatitis is an unusual, treatable opportunistic infection, probably caused by the same bacillus that is responsible for bacillary angiomatosis[1,12].

C. Pathological Findings

The main pathological finding of bacillary angiomatosis is a vascular host response. The response pattern is dependent upon which organ it affects. For example, in the liver and spleen it presents with bacillary peliosis hepatitis. An angiomatous pattern like that seen in the skin is observed on the bone and the lymph nodes.

Histological pathology found in the skin consists typically of a lobular proliferation of small circumferential blood vessels located in the dermis or subcutis. The endothelial cells are plump and protuberant into the lumen with abundant cytoplasm and numerous, closely adherent, cuboidal cells with vesicular nuclei. With this description the condition leads to the term "epithelioid hemangioma" or histiocytoid hemangiomas as was called in the past. This condition consists of a variety of closely-related but different vascular neoplasms found in the skin, soft tissue, and internal organs[9]. The cuboidal epithelioid cells express markers for both endothelial cells and histiocytes (Factor VIII antigen and a_1-anti-chymotrypsin, respectively), leading investigators to believe that these cells have immunochemical features[9].

The pathological features found on the bone and lymph node also show a lobular proliferation of small circumferential blood vessels, some presenting with abundant endothelial cells. Neutrophils may be sparse and its lobular morphology might not be visible, especially in small fragments from some bone biopsies. The lesion is similar to Kaposi's sarcoma or active granulation, but Kaposi's sarcorna contain fascicles of

spindle cells with cleft-like spaces containing extravasated erythrocytes and hemosiderin rather than the well-formed vessels present in bacillary angiomatosis[13].

The diagnostic histologic pathology present in bacillary angiomatosis of the skin, lymph nodes, bone, and liver and spleen as seen in bacillary peliosis, represents the invasion of the causative bacteria[19,21]. The bacteria can be observed via conventional microscopy of hematoxylin-eosin stained sections as a granular violaceous material. They are present interstitially within the vascular proliferation in the skin, lymph nodes, and bones and are present in the myxoid connective tissue seen near peliotic spaces in the liver and spleen. The bacteria can be stained using Warthin-Starry stain or Brown-Hopp's tissue gram stain in which they conglomerate into clumps and tangles[13]. As confirmation of stained material, electron microscopy helps clearly identify the gram-negative bacillus organism in order to pin-point the diagnosis and treat properly and promptly[5].

Diagnosis

The diagnosis of bacillary angiomatosis can be made unequivocally by a histologic stain in section and the use of electron microscopy in the examination of the involved tissue. A proliferation of blood vessels accompanied by inflammatory cells and the characteristics interstitial granular material are usually found on staining sections. Results of a Warthin-Starry stain or electron microscopy demonstrate the causative bacteria being *Rochalimaea henselae.*

Rochalimaea henselae can be isolated from blood if lysis-centrifugation blood cultures are used, but *R. henselae* has also been isolated with Bactec blood-culture system[8] and isolated after direct plating of tissue from lymph nodes and spleen. *R. henselae* has, of course, been isolated from skin lesions.

The use of gas-liquid chromatography is a reliable method to confirm the organism once it has grown in culture[14]. Commercially available techniques have been designed for identification of fastidious organisms like the BA causative agent (e.i. Microscan Rapid Anaerobe Panel from Baxter). Serologic methods such as indirect immunofluorescent-antibody testing are gaining popularity as diagnostic method and also used for epidemiologic studies[15].

Diagnosis of BA and extracutaneous disease is most often made by an assessment of the clinical features coupled with biopsies of lesions with characteristic histopathological findings in tissue sections. Blood cultures should be obtained and incubated for a prolonged period of time.

Bacillary angiomatosis once it is diagnosed treatment should be begun immediately, but to reach this diagnosis there might be some confusion since many lesions have clinical or histologic similarities.

The histologic differential diagnosis of bacillary angiomatosis includes most of the histologic features that represent BA compared with disease that have a comparative similarity, such as Kaposi's sarcoma, Angiosarcoma, lobular capillary hemangioma or pyogenic granuloma, and Epithelioid hemangioma.

From the differential diagnosis based almost exclusively on histological characteristics it can be anticipated that Epithelioid hemangioma and Lobular capillary hemangioma have the closest hematologic relationship to bacillary angiomatosis. Kaposi's sarcoma and angiosarcoma are clearly differentiated from BA, holding only clinical similarities (AIDS occurrence and skin manifestations) that don't hold up once compared with the treatment response.

Treatment

For the treatment of bacillary angiomatosis, erythromycin at a dosage of 500 mg four times per day for approximately the period of two weeks to two months, has been selected as its primary drug based on this excellent clinical response to virtually any clinical presentation of bacillary angiomatosis[10]. The use of doxycycline has also had an excellent response for those patients that cannot tolerate the use of erythromycin[4]. The use of B-lactam antibiotics do not have a good response. Though a number of antibiotics have been tried, a limited number of them have successfully acted on the offending bacillus; such as isoniazid, rifampin, and trimethoprim-sulfamethoxazole[10]. The recommendation of most authors on the selection of antibiotics for bacillary angiomatosis remains the use of erythromycin or doxycycline if intolerance to erythromycin is present[7].

All patients, once diagnosed with bacillary angiomatosis, should be treated promptly because of the potential morbidity and mortality associated with untreated progressive disease[17]. In addition, a cosmetic benefit is gained, since the skin lesions associated with BA tend to be disfiguring, but they usually resolve with erythromycin. The optimal duration of therapy is unknown, and it depends primarily on the immune status the patient (Table III). Once the therapy is initiated, a response similar to Jarisch-Herxheimer reaction might be expected. Jarisch-Herxheimer reaction is characterized by fever, myalgias, and constitutional symptoms.

Since it is difficult to predict which patient will relapse, one should use clinical judgement to individualize therapy according to the clinical presentation,

Table III.
Duration of Therapy for Patients with Bacillary Angiomatosis Depending on their Immune Status

Immune Status	Duration of Therapy
Immunocompetent	2 to 4 weeks depending on clinical; if relapse occurs, prolongation of treatment is recommended
Immunosuppressed, HIV-	Approximately 4 weeks or until immunosuppression has resolved; therapy may last months if relapses occur
HIV+	Weeks to months; may be extended as life-treatment maintenance if relapses occur

the severity of the disease, the level of immunosuppression, and the extent and rapidity of the clinical response to treatment[7].

Abstract

Bacillary angiomatosis is a relatively new disease entirely caused by Rochimalea. Its principal manifestations are in the skin, but septemic in manifestation can occurs with involvement of the lymph nodes, liver, spleen tissue diagnosis lead to effective treatment with either erythromycin or doxycycline. Treatment for 2-8 weeks level to elimination of the lesions and cosmetic improvement. Awareness of the entitle will lead recognition and prevent management.

Resumen: Hoy día se conoce que angiomatosis bacilar es causada por un organismo de las Richettsiae; *Rochalimaea henselae.* Este agente causal ha sido comparado con otros microorganismos y/o condiciones que aparentan tener una similitud al surgir en ambientes similares, pero se ha documentado claras diferencias entre ellos, e.i. Enfermedad del rasguño del gato *(Afipia felis), Bartonella bacilliformis,* otras especies de las Richettsiae, Sarcoma de Kaposi, Hemangioma capilar lobular, Angiosarcoma, y Hemangioma epitelioide.

Clínicamente las lesiones cutáneas causadas por BA tienden a surgir como lesión solitaria o como lesiones múltiples (más de mil). Las lesiones cutáneas aparecen como pápulas redondas de color rojo intenso, nódulos subcutáneos, o como placas celulíticas. Cuando las lesiones se biopsian, ellas tienden a blanquecer, sangrar, y causar mucho dolor. El paciente puede presentar con signos y síntomas de escalofríos, dolor de cabeza, malestar general, fiebre, y anorexia asociado o no a la pérdida de peso. Las lesiones extracutáneas encontradas en BA tienden a afectar múltiples órganos, desde lesiones orales, lesiones en la mucosa anal, hasta lesiones viscerales esparcidas. La localización preferida en donde se manifiesta BA son en el hígado, bazo, nódulos linfáticos, y hueso.

Para diagnosticar BA, el médico debe preparar un diagnóstico diferencial basado primordialmente en las características histopatológicas y clínicas para poder diferenciar el organismo de otras enfermedades que comúnmente se encuentran en pacientes infectados por VIH. Para confirmar los resultados el uso de un microscopio electrónico puede identificar el bacilo y precisar el diagnóstico.

Las lesiones presentadas por BA responden al tratamiento con eritromicina 500 mg cuatro veces al día por una duración de 2 semanas hasta 2 meses. En caso de alguna intolerancia a la eritromicina, el medicamento de segunda línea recomendado es doxicilina. Si ocurren recaídas, entonces el tratamiento del antibiótico debe de prolongarse. En pacientes de SIDA la duración del tratamiento puede llegar a ser por vida.

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Biliary Atresia: An Overview

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Summary: Biliary Atresia is the most common cause of persistently direct (conjugated) hyperbilirubinemia in the first three months of life. It is a progressive inflammatory obliteration of the extra- and intrahepatic bile ducts whose pathogenesis remains speculative.

This review updates the history, etio-pathological considerations, clinical manifestations, methods of diagnosis, surgical management, and results of this terrible disease in young infants.

We will emphasize that persistent jaundice in the newborn period must be managed urgently, a diagnosis should be established early in life, and Kasai portoenterostomy offered to those infants with Biliary Atresia before their eighth week of life. This will allow more than one-third of children to survive. Hepatic transplantation is reserved for those children with failed portoenterostomy, progressive liver failure or late-referral to surgery.

Biliary atresia (BA) continues to originate controversy and despair among physicians and patients alike. With the development of liver transplant and new techniques in small size orthotopic replacement, a new insight in BA surgical care has come forth. Where do we stand today in therapy?, What causes this terrible disease?, and What should be the guidelines in management of the cholestatic infants? are some issues reviewed in this monograph.

This condition is the most common cause of persistently direct (conjugated) hyperbilirubinemia in the first three months of life. Kasai portenterostomy and liver transplantation battle to become today's leading therapy. One thing is for sure, results after portoenterostomy are decided by the promptness of the initial work up and referral to surgery. More than 80% of BA babies have satisfactory bile flow after hepatic-portoenterostomy if the procedure is done before their 8th week of life. It's certain, we must view newborns with persistent cholestasis as urgent cases that need immediate assessment and management of their condition.

History

Biliary atresia is characterized by progressive inflammatory obliteration of the extrahepatic bile ducts, an estimated incidence of one in 15,000 live births, and predominance of female patients[1]. The first comprehensive paper was written by J. Thompson of Edimburg in 1882. J.B. Holmes in 1916 classified cases as correctable (10 15%), and non-correctable (85-90%) depending on the pathologic structures identified at the porta hepatis area, and Dr. William Ladd in 1928 ventures into the first successful bile-enteric anastomosis[2]. In 1959 Kasai and Suzuki described a new procedure for biliary atresia that transformed management during the following 30 years[3]. By 1980 most infants with biliary atresia were managed with the Kasai procedure.

Etio-pathological Considerations

Although much has been written of BA, its pathogenesis remains speculative. The original theory of an embryogenic accident that settled in occlusion of the extrahepatic biliary tree, was challenged by the absence of jaundice at birth, and histologic evidence of patent biliary ducts that progressively disappeared during the first months of life[4]. Findings in the obstetric history of older parents, high use of drugs, associated illness, and fetal loss suggested the possibility of exposure to a noxious agent during the reproductive process[5].

The disease is the result of an acquired inflammatory process with gradual degeneration of the epithelium of the extrahepatic biliary ducts causing luminal obliteration, cholestasis, and biliary cirrhosis[6]. The timing of the insult after birth suggests a viral etiology obtained transplacentally; Reovirus type 3 has been implicated[7]. Up to 68% of infants with BA show antibodies to Reovirus type 3 in serum, although no viral particle has been isolated[8]. Oral and intraperitoneal administration of reovirus to experimental animals causes hepatitis and biliary tract inflammation with fibrosis similar to BA[4,7,9,10].

Almost 20% of patients have associated anomalies such as: polysplenia, malrotation, situs inversus,

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preduodenal portal vein and absent inferior vena cava. This raises the possibility of a genetic mutation and the hypothesis of laterality with defective development of one side of the body when compared with the contralateral image side[11, 12].

Histopathology is distinguished by an inflammatory process in several dynamic stages with progressive destruction, scar formation, and chronic granulation tissue of bile ducts[13]. The pathologist cannot be categoric in the diagnosis of BA, since liver changes are compatible with an extrahepatic mechanical obstruction. Two changes merits mention: portal tract interlobular ducts proliferation, and cholestatic histology. Other findings are: giant cell transformation, focal hepatic cell necrosis, interlobular space and portal tract fibrosis. Conditions displaying a similar histology are: alfa-1 antitrypsin deficiency, Alagille's syndrome (hypoplasia of bile ducts), and TPN induced cholestasis. Immunohistochemistry of the portal ducts can show the presence of the epithelial membrane antigen in large ducts, changes specific for BA[13, 14].

Three types of microscopic biliary structures have been identified in the most proximal aspect of the extrahepatic remnant removed surgically near the area of the porta hepatis. These are: bile ducts with a mean diameter of 500μ and bile in the lumen, collecting ductules of biliary glands with a mean diameter of 250 μ, and biliary glands without bile and a mean diameter of 100 μ[15]. Postoperative biliary flow after Kasai correlates with the presence and size of bile ducts and collecting ductules exclusively[15, 16, 17, 18]. Electron microscopy can exhibit canalicular biliary membrane filaments whose volume and appearance correlates with adequate bile flow[19]. The degree of hepatic fibrosis associated also relates with post-op biliary flow. Kasai portoenterostomy relies on the realization that the microscopic structures in the porta hepatis will act as micro-conduits of bile as an internal biliary fistula is created with a segment of bowel. All will eventually merged into one or two ducts.

BA classification is based on findings upon operative cholangiography and the macroscopically specimen morphology as shown in Figure 1 (percent's are obtained from the National Biliary Atresia Registry[20]).

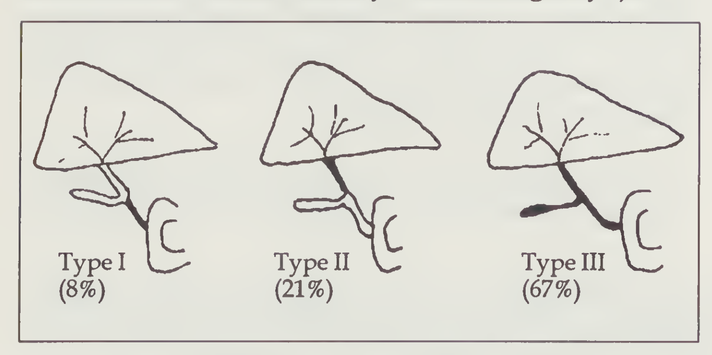


Fig. 1: *Morphologic Types of Biliary Atresia*

Clinical Manifestations and Diagnosis

Physiologic jaundice of the newborn is a common, benign, and self-limiting condition. Persistent conjugated hyperbilirubinemia (greater than 20% of total or 1.5 mg%) should be urgently appraised. Initial evaluation should include a well-taken history and physical exam, partial and total bilirubin determination, type and blood group, Coomb's test, reticulocyte cell count and a peripheral smear[21].

Cholestasis means a reduction in bile flow in the liver, which depends on the biliary excretion of the conjugated portion. Reduce flow causes retention of biliary lipoproteins that stimulates hypercholesterolemia causing progressive damage to the hepatic cell, fibrosis, cirrhosis and altered liver function tests[22]. The etiology of the cholestatic infant is classified in several groups as depicted in Table 1. Those structurally related etiologies are surgical causes of jaundice.

Table I:
Causes of Neonatal Jaundice

Infectious	
Viral	
Cytomegalovirus	Reovirus type 3
Rubella	Coxsackie B
Hepatitis	HIV
Herpes	Echovirus
Bacterial	
Gram negatives	Syphilis
Toxoplasmosis	Tuberculosis
Structural	
Biliary Atresia	
Spontaneous perforation of bile ducts	
Choledochal cyst	
Cholelithiasis	
Bile ducts strictures	
Metabolic	
Alpha 1- antitrypsin deficiency	Alagille's syndrome
Galactosemia, Fructosemia	Polyplenic syndrome
Tyrosinemia	Total parenteral nutrition
Glycogenosis	Cystic Fibrosis
Gaucher's disease	Congenital hepatic fibrosis
Niemann-Pick	Byler's disease
Hypothyroidism	Turner syndrome
Hypopituitarism	
Systemic	
Post NEC	
Congestive Heart Failure	
Left hypoplastic heart syndrome	
Sepsis	
Shock/Hypoperfusion	
Drug induced	

In BA the patient develops insidious jaundice by the second week of life. The baby looks active, not acutely ill and progressively develops acholic stools, choluria and hepatomegaly[24]. Non-surgical source of cholestasis shows a sick, low weight infant who is jaundiced since birth. The diagnostic evaluation of the cholestatic infant should include a series of lab tests that can exclude perinatal infectious (TORCH titers, hepatitis profile), metabolic (alpha-1-antitrypsin levels), systemic and hereditary causes[25, 26].

Total bilirubin in BA babies is around 6-10 mg%, with 50-80% conjugated. Liver function tests are nonspecific. Lipoprotein-X levels greater than 300 mg% and Gamma Glutamyl Transpeptidase (GGT) above 200 units% suggest the diagnosis[13]. *The presence of the yellow bilirubin pigment in the aspirate of duodenal content excludes the diagnosis of BA.*

Ultrasound study of the abdomen should be the first diagnostic imaging study done to cholestatic infants to evaluate the presence of a gallbladder, identify intra or extrahepatic bile ducts dilatation, and liver parenchyma echogenicity. BA sonographic characteristics are: absent, or small gallbladder that does not contract upon hormonal stimuli, and increased liver echogenicity[27]. *The postprandial contraction of the gallbladder eliminates the possibility of BA even when nuclear studies are positive.* These changes are consistent with neonatal hepatitis[27,28,29].

Nuclear studies of bilio-enteric excretion (DISIDA) after pre-stimulation of the microsomal hepatic system with phenobarbital for 3-5 days is the diagnostic imaging test of choice[30]. BA patients will show an increase hepatic uptake during early injection without significant bilio-enteric excretion in delayed films (24 hrs.) *The presence of the radio-isotope in the GI tract excludes the diagnosis of BA.* Hepatocellular causes of jaundice will show poor concentration of isotope in the liver associated to delayed or absent excretion.

Percutaneous liver biopsy should be the next diagnostic step if previous studies suggest BA and the infant has no associated coagulopathy[31]. Findings of BA are: bile duct proliferation and fibrosis. Unfortunately this changes are nonspecific of BA and can be found in neonatal hepatitis[2].

The mini-laparotomy is the final diagnostic alternative. Through a small right subcostal incision a gallbladder cholangiogram and liver biopsy is done. *Those infant with radiographic evidence of patent extrahepahc biliary tract has no BA.* Small, hypoplastic ducts are associated to Alagille's syndrome[32]. In BA the gallbladder can be a fibrous remnant, present but filled with white bile (hydrops), with no communication with the biliary tree, or with distal extrahepatic communication. Once the diagnosis of BA is established intraoperative, a Kasai enterostomy is constructed.

The prenatal diagnosis of BA was first reported in 1986. Antenatal sonography showed a cystic structure in the fetal abdomen confirmed as BA 76 hours later[33]. Recently, diagnostic laparoscopy has been found useful in the evaluation of the cholestatic infant[34].

Management

Medical management of BA is uniformly fatal.
Kasai portoenterostomy has decreased the mortality of BA during the last 30 years. The procedure done before the first 6-8 weeks of life will yield biliary flow in 75 - 80% of infants.

Kasai procedure consists of removing the obliterated extrahepatic biliary system, and anastomosing the most proximal part to a bowel segment. Adequate illumination and magnifying loupes are essential. The initial mini-laparotomy incision is extended once the diagnosis is confirmed. The gallbladder, cystic duct and extrahepatic remnant is mobilized, the distal common bile duct is ligated and the dissection goes proximally toward the porta hepatis. At the porta hepatis the remnant looks like a fibrous cord with the shape of a cone. At this point the cord is transected perpendicularly to the liver level and the specimen send to the pathologist. The raw surface left over is anastomosed to a defuntionalize limb of jejunum in a Roux-en-Y fashion using small suture bites. It is estimated that 10-15% of cases have distal patency of the extrahepatic bile ducts and the gallbladder can be used as conduit, instead of bowel. This variation in the procedure eliminates the possibility of developing cholangitis, but increases the incidence of anastomotic leak from ischemia during dissection[2,13,24,30,35,36].

Table 2 shows complications associated to Kasai procedure. Cholangitis is probably the most common, serious, and occur in 90% of patient who drain bile during the first year of life. Clinically they manifest fever, leukocytosis, elevated bilirubin in serum, and deterioration of liver function tests. Management consists of antibiotics. Main cause is ascending infection through the interposed bowel segment associated to destruction of lymphatic drainage. Recurrent attacks of cholangitis cause progressive hepatic damage[37,38]. Sonography can show cystic intrahepatic bile duct dilatations in children with repetitive attacks. This cysts are either non-communicating or communicating. Management may consist of percutaneous transhepatic drainage, and sclerosis of non-communicating cysts[39]. To reduce the incidence of cholangitis the prophylactic use of antibiotics during the first 18-24 months of life is recommended. Constant attacks of cholangitis are associated to sudden cease of bile flow needing steroid therapy or re-operation.

Table 2:
Postoperative Complications

Cholangitis
Sudden cease of bile flow
Portal hypertension
Esophageal varices
Hypersplenism
Ascites
Essential fatty acid deficiency
Vitamins malabsortion (A,D,K,E)
Essential metals deficiency
Pruritus

In pursuit of reducing the episodes of cholangitis the Kasai procedure was modified providing an external conduit to diminish the intraluminal pressure and secretory liver gradient. This enabled the measurement of bile volume and concentration. This external conduits did not reduce the incidence of cholangitis. Furthermore they were plagued with several complications such as: enterostomal varices, bile salts deficiency, electrolytes disturbances, and a later procedures to close the enterostomy[40,41]. Not exteriorized interposed segments of bowel with intussuscepted valves and jejunal interposition between porta hepatis and duodenum has proved to reduce the incidence of cholangitis increasing survival[42].

Almost three-fourth of patients will develop portal hypertension in spite of adequate postoperative bile flow. They will manifest esophageal varices, hypersplenism, and ascites. Factors associated to this complication are: history of cholangitis, older infant during surgery, re-operations, and elevated portal pressure during initial surgery[43]. Esophageal varices usually develop 2-8 years after portoenterostomy and are managed with endoscopic sclerotherapy effectively. Secondary hypersplenism can be managed with partial embolization of the splenic artery. Ascites will need salt restriction and diuretics. Later in life a reduction in this complications is linked to the spontaneous development of portosystemic shunts.

Essential fatty acids malabsorption leading to caloric and nutritional deficiencies should be managed with high concentration medium chain triglyceride formulas. This malabsorption could lead to A, D, K, and E fat soluble vitamin deficiency. Maternal milk is insufficient to provide caloric needs, and formula supplementation should be provided, even with forced tube feedings. The objective is to provide 150 calories and 3-4 grams of protein daily per kilogram of weight, along with vitamin supplementation.

Pruritus is difficult to manage. Antihistamines are first line of treatment due to their tranquilizing effect. Other drugs used are cholestyramine to reduce enterohepatic circulation, phenobarbital to increase biliary flow and rifampin.

The new era of liver transplantation, better surgical techniques, smaller donor accessibility and new inmunosuppresor agents (cyclosporine) has brought second thoughts to the use of Kasai enterostomy. Major liver transplant centers see Kasai as a complementary procedure of historic interest. From 75-80% of patient with BA will be candidates for orthotopic liver transplant[44,45]. Some recommendations for those patient initially undergoing a Kasai procedure who could become future candidates for liver transplantation are: Use oblique incisions to reduce adhesions to the liver capsule, the Roux-en-Y of jejunum should not be long (40 cm) to be reused later avoiding problems with cyclosporine absorption, and elude enterostomies[22].

Results

Without surgical management survival of infants with BA is 8-12 months, most dying of irreversible liver failure.

Results of portoenterostomy are associated to a group of prognostic factors studied (see Table 3). The two most important factors are: age at surgery and histologic liver changes[46,47]. Other factors are: caucasian race, morphologic type of BA, size of ductal structures at porta hepatis, postop bile flow, degree of hepatic fibrosis, surgical technique used, type of surgical reconstruction, incidence of cholangitis, and development of symptomatic portal hypertension[20,26].

Age at surgery is probably the most determinant factor of survival after Kasai procedure. Ideally it should be done before 60 days of life. The presence of bile ducts in the extrahepatic remnant and the degree of liver fibrosis correlates with the age of the patient. The older the patient the lesser the possibility of findings adequate size ducts and the worst the hepatic fibrosis. The degree of hepatic fibrosis and degeneration of intrahepatic ducts correlates directly with prognosis irrespective of the size of the ductal microstructures identified in the porta hepatis area[47,48].

General results of Japanese series fare better when compared to Occident. This is attributed to a racial influence associated. Caucasian race has a worst prognosis than oriental children [20]. Morphologically those patients with patent distal extrahepatic ducts and a gallbladder Kasai constructed do better. This is the result of a more physiologic conduit, a reduced number of cholangitis episodes, and a low level inflammatory process[49].

The type of surgical reconstruction has no relationship to survival. Continual attacks of cholangitis will progress to hepatic fibrosis and irreversible damage

Table 3:
Prognostic Factors associated to Kasai Portoenterostomy

Preoperative factors
- age of surgery
- hepatic histology
- race

Operative factors
- morphologic type
- size ductular structures at porta hepatis
- surgical technique
- type of surgical reconstruction

Postoperative factors
- bile flow
- cholangitis
- portal hypertension

related with early development of portal hypertension[20]. Postoperative bile flow correlates with improved immediate survival, with no guarantee of long term survival. Results reported by several series can be appreciated in Table 4. Up to 80% of children undergoing portoenterostomy before 60 days of age will drain bile and jaundice will improve. At five years survival will be 29-60%, 25-35% at ten years and 8% at twenty years[13,20,30,49,52].

The greatest mortality in BA occurs during the first two years after portoenterostomy. Long-term follow-up of children living more than ten years after Kasai shows moderate hepatic dysfunction, controlled portal hypertension, a normal intellectual coefficient, and a good quality of life[49,53].

Conclusions

Persistent jaundice in the newborn must be managed urgently. A diagnosis should be established early in the life of the child and Kasai portoenterostomy offered to those infants before their eighth week of life. This will allow that more than one third of BA children survive this terrible disease.

Hepatic transplantation is reserved for those patients with failed portoenterostomy, progressive liver failure or late-referral to surgery. Liver transplant indications should include patients with bilirubin levels above 10 mg%, low albumin levels, weight loss and uncontrolled ascites.

Resumen: La Atresia Biliar es la causa principal de hiperbilirubinemia (conjugada) directa persistente durante los primeros tres meses de vida. Representa una obliteración inflamatoria progresiva del sistema biliar extra- e intrahepático cuya patogénesis continua especulativa.

Este artículo pretende poner al día conceptos de historia, consideraciones etiopatológicas, manifestaciones clínicas, métodos de diagnóstico, tratamiento quirúrgico y los resultados de esta terrible enfermedad en el recién nacido y el infante.

Enfatizaremos que el recién nacido con ictericia persistente se debe manejar de forma urgente, estableciendo un diagnóstico temprano en su vida y ofreciéndole la hepático-porto-enterostomía de Kasai antes de su octava semana de vida. Esto permitirá que más de una tercera parte de ellos sobrevivan. El trasplante hepático se debe utilizar cuando la cirugía de Kasai no produce flujo biliar, en fallo hepático progresivo o cuando los niños son referidos a cirugía tardíamente.

Table 4:
Results After Kasai Procedure

Series	Year	# Pts.	5 Years Survival	10 Years Survival	20 Years Survival
Carcassone et al[50]	1977	532	12.7%	-	-
Akiyama et al[51]	1978	90	41.1%	-	-
Kobayashi[52]	1984	135	29%	-	-
Tohoku University Hospital[13]	1953-91	274	35%	33.5%*	_
Altman[30]	1974-86	225	59.5%	33%	-
National Biliary Atresia Registry[20]	1976-89	670	48%	35%**	-
Toyosaka et al[49]	1967-91	76	-	27.6%	7.8%

* of 194 patients who initially survived
** approximation of the graphic of survival

Nota: Este trabajo es el producto condensado de un capítulo titulado: *'Colangiopatías Infantiles'*, que el autor publicó en el recién libro de texto "Cirugía Pediátrica" editado por el doctor José María Valoria Villamartín de la Clínica Fundación Jiménez Díaz en Madrid, España.

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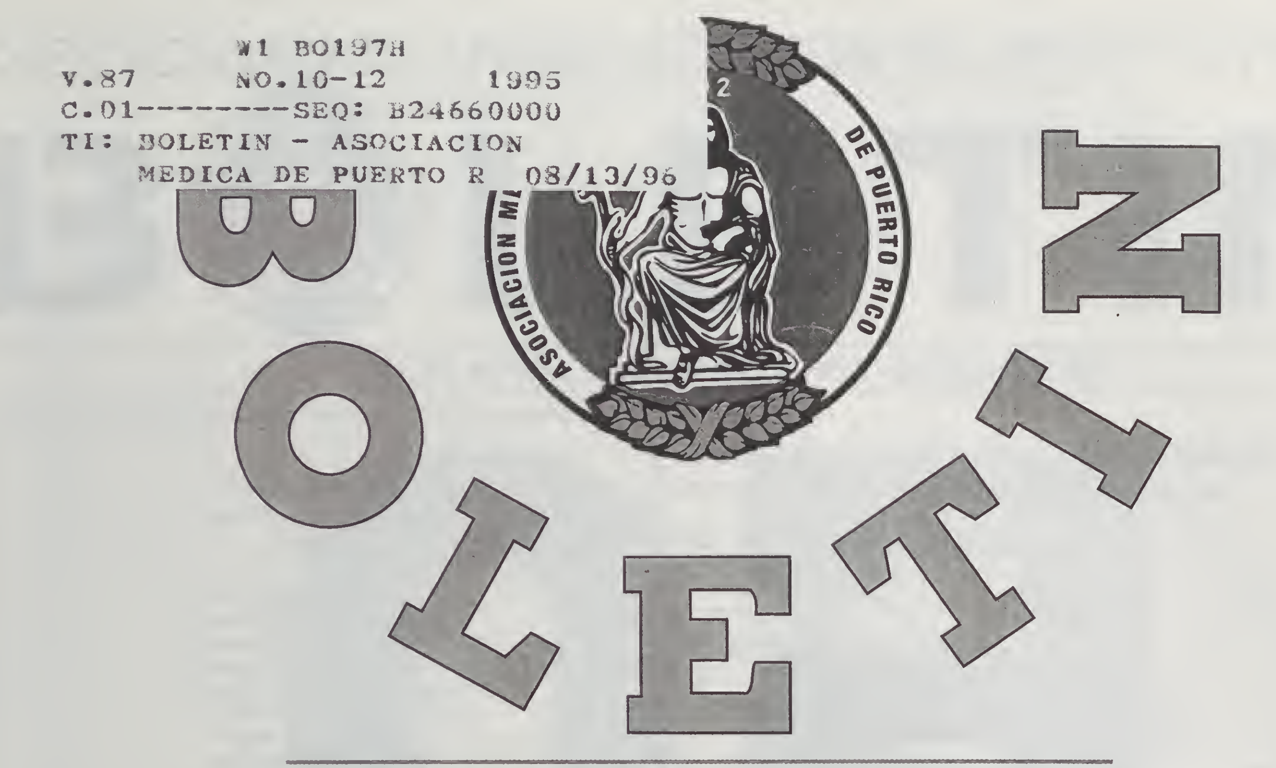
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Editorial:

Physician-Assisted Suicide: Is this the right direction?

José Ramírez Rivera, M.D., F.A.C.P., F.C.C.P.

There has been a growing conviction that Advance Directives are morally binding when they represent the uncoerced decisions of competent adults. And, with limited exceptions, particularly in the area of withholding or withdrawing artificial feeding and hydration, physicians and institutions are progressively accepting their duty to withhold or withdraw unwanted treatment when it is requested by a competent adult or his surrogate. The ethical principles applied are two: Autonomy and Beneficence. These same two principles are coherently espoused by those who support physician-assisted suicide.[1-3]

The purpose of this essay is to present dispassionately how the principles of beneficence and autonomy are construed to apply in physician-assisted suicide, to review recent recommendations for its implementation, to highlight professional pitfalls of this practicer and to offer details on the first law which, as of November 1994, legalizes in the State of Oregon this highly controversial physician intervention.

The Dilemma

First and foremost, physicians must have the welfare and best interests of the patient. The initial function of the physician is to understand the meaning of the patients complaints and to elicit his feelings and expectations about the unravelling clinical problem. A shared analysis of proper solutions, leads the physician to an authorized course of action which, in all instances, should seek to maintain the dignity and respect the uniqueness of each patient.

In a democratic society it is the individual who determines his own life's plan and his best interest. For many patients who are near death it is more important to avoid great suffering, to preserve their dignity, and to enjoy meaningful life, than to remain questionably "alive" for a few more weeks. When life becomes a burden rather than a benefit, some think that to shorten a painful road to an inevitable death may be the last act of beneficence a caring physician may provide.[1,2] In fact, some individuals claim to have been victimized by personally inappropriate technological interventions which prolonged their lives to the point living became unbearable.

The main non-religious argument against physician-performed euthanasia is that it violates fundamental principles inherent to the medical profession. Physicians have been trained and guided from the time of Hammurabi to promote health and healing and alleviate suffering. The double role of healer and angel of death destroys the traditional health-promoting and beneficient image of the physician. Trust, a fundamental requirement for an effective physician-patient relationship, will be undermined if the approaching footsteps to the room of a mortally stricken patient may be sensed as gruesome harbingers of certain death.

There is also a genuine fear of the social consequences of legalized euthanasia. Physicians could be influenced by families to encourage patients to request euthanasia to avoid their financial or emotional strain. If euthanasia were legalized, society's commitment to provide optimal care of the dying patient may weaken. This may be the beginning of a "slippery slope" which will lead to euthanizing not only terminally ill patients requesting death, but other less useful members of the society. In the Netherlands, where active euthanasia is a condoned medical practice, studies show that lethal treatment has been administered to suffering patients who have not made a request to die.[4-5]

Also in the Netherlands, when nursing home physicians were asked to describe their most recent case of physician-assisted suicide, the following distressing facts came to light.[6] In only 1% of the cases were all requirements "for prudent medical practice" required by law fulfilled. In 7% of the cases physician-assisted death took place within 1 day of the first request. In 85% of the cases the patient took the initiative, but in 6% the physician and in 4% the family took the initiative. Only 47% of the patients confirmed their verbal request in writing. Fifteen percent of physicians did not request a second opinion from a consultant and in only 60% of the cases did the consultants talked to the patients. The gathering facts seem to support

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Pellegrino"s contention that the "slippery slope" is "an inescapable logical, psychological, historical and empirical reality".[7] This, in addition to his views that assisted suicide is an act of intentional killing "based on erroneous notions of compassion, beneficence and autonomy".

Although acts to intentionally cause the death of a person or to induce a patient to take his or her own life are unlawful in all but one of the United States, there is no national consensus in our pluralistic society on the morality of offering medical advice or prescribing the means for the suffering competent patient to commit suicide.[8,9] There is growing agreement, however, that when continued treatment cannot preserve life, relieve pain and suffering, or return effective functioning, the withdrawal of treatment at the request of the competent patient or his surrogate is ethically correct. There is also agreement that physicians should not perform acts which in the light of current medical knowledge (supported usually by the opinion of expert consultants) are deemed to be futile.

The Ethical Proposal

While objecting to physician enrollment in mercy killing, some contemporary thinkers contend that it is morally acceptable to provide assistance to suffering competent terminally ill patients in their desire to commit suicide. They argue that this places the decision where it should be: in the hands of the patient. Such action responds in their view, to the sound moral principles of autonomy and beneficence.[1-3]

Advocates of physician-assisted suicide believe that a regulatory policy should be legislated by the States for the following purposes: (1) To develop practice guidelines which would make a lethal treatment available only as a last recourse for unbelievable suffering, (2) To provide independent and impartial oversight of assisted-death decisions without disruption of the doctor-patient relatioship, (3) To provide a mechanism for prospective review of difficult or disputed cases and, (4) To ensure public accountability.[3] They contend that the current practice of secretly assisted suicides and the absence or publicly sanctioned criteria or independent scrutiny compromises the personal integrity of physicians and undermines respect for the law.

These physicians and ethicists are moved by a loud cry from the public at large which, in many states, wants to make legal "their right as individuals to die in a humane and dignified manner," and by the conviction that our technological meddling to prolong the dying process is lessthan humane. The growing strength of the right to die movements is particularly evident in our liberal western states.[8-10] In 1991, voters in Washington State defeated by a 54 to 46 percent margin Initiative 19 which would have legalized assisted suicide and euthanasia. In 1992, a similar Initiative in California (Proposition 161) was defeated by a similar margin. In 1994, the voters of Oregon approved a measure that prohibits mercy killing but legalizes physician-assisted suicide.[11] Because it seems likely that their lead will be followed by other States, it is important to be thoroughly conversant with its contents.

Oregon´s Death with Dignity Act As of June 1996, legal battles were still holding back implementation of this Act

Oregon's Measure No. 16 makes posible the following: It allows terminally ill adult Oregon residents, fully informed of their terminal illness and prognosis, to obtain a physician's prescription for drugs to end his or her life through a prescribed written request. The written request must be witnessed "by at least two individuals who will attest that, to the best of their knowledge and belief the patient is capable, acting voluntarily, and is not being coerced to sign the request". One of the witnesses shall be a person who is **not** a relative of the patient byblood, marriage or adoption, **not** a person entitled to any portion of the State, and **not** an owner, operator or employee of health care facility where the patient is a resident or receives medical treatment. The patient's attending physician **shall not** be a witness. No less than 48 hours shall elapse between the written request and the writing of the prescription for lethal treatment.

The Oregon Measure No. 16 also removes criminal penalties for **qualifying** physician-assisted suicide. To **qualify** for a physician-assisted suicide the law requires:

a) An initial determination of an incurable disease likely to produce death within 6 months.

b) Appropriate consultations to confirm the diagnosis and to determine the patient is capable of acting voluntarily.

c) A fully informed patient as to diagnosis and prognosis.

d) Orienting the patient as to the probable result of the medication.

e) Informing the patient of feasible alternatives including, but not limited to, comfort care, hospice care and pain control.

f) Counselling by a psychiatrist or psychologist if the patient has a mental disorder, impaired judgement of depression.

g) Requesting the patient to notify a next of kin (The

request for assisted suicide will not be denied if the patient is unable or unwilling to notify his family).

h) Verification at the time the prescription is written that the patient is making an informed decision.

The statute further states that:

a) A "qualified" patient's act of ingesting medication to end his life in an humane and dignified manner shall have no effect upon life, health or accident insurance, or annuity policy.

b) No person shall be subject to civil or criminal liability for compliance with this act. **This includes being present when the patient takes the prescribed medication to end his or her life.**

c) No professional organization or health care provider "may subject a person to censure, discipline, suspension, loss of licence, loss of privileges, loss of membership or other penalty for participating or refusing to participate in good faith compliant with this act".

d) No health care provider shall be under any duty to provide medication to a qualified patient to end his or her life.

Comment

Our lack of direct involvement with the Dutch or Oregonian experiments does not permit us to ignore the defects in our current practice. Physicians need to assess physiological parameters of the terminally ill in the light of known medical facts and tailor their behavior to the individual needs and wishes of their patients. At present inappropriate medical interventions are frequently carried through to a bitter end in a contrived, deceptive, farcical act which prolongs the agony of dying patients and leaves well-meaning families exhausted: physically, emotionally and economically. Useless heroics with the terminally ill need to be adjudicated by society and the medical profession for what they really are: unacceptable medical practice. Likewise unacceptable is the abandoning of patients when there is "nothing more than can be done". Terminal patients need to know that as clinical events become complicated and distressing their physician will be there with creative and appropriately aggressive solutions that will make the end of life a gentle release rather than a martyrdom. An early, clearly-focused compassionate switch from life-prolonging to effective comforting palliative measures in terminal illness responds best to the principles of autonomy, and beneficence.

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Non-Hodgkin's Lymphoma Associated with the Acquired Immunodeficiency Syndrome

—William Cáceres, MD

Summary: Patients with the Acquired Immunodeficiency Syndrome (AIDS) have an increased risk of developing Non-Hodgkin's Lymphomas (NHL). It is estimated that 8-27% of newly diagnosed NHL are associated with AIDS. The majority of these lymphomas are of intermediate or high grade histology. We retrospectively analyzed the clinical manifestations and response to different chemotherapy regimens in patients with AIDS NHL in the San Juan City and San Juan Veterans Administration Hospitals from 1990-1993. Eleven patients (10M/1F) with an average age of 46 (range 31-68) were analyzed. 64% (7/11) of patients had a prior diagnosis of AIDS before the diagnosis of NHL. Pathology was diffuse large cell in 6, Burkitt's in 4 and immunoblastic in 1. 73% of patients presented with Stage III/IV. Sites included gastrointestinal tract (2), skin/soft tissue (2), paranasal sinus (1), kidneys (1). The most common treatment regimen was the modified m-BACOD (64%). Complete response (CR) ocurred in 46% (5/11) and partial response (PR) in 27% (3/11). 36% of patients developed opportunistic or bacterial infections during treatment. Median survival was 8 months. Two patients are long-time survivors at 24+, 29+ without evidence of NHL at present. This group of patients demonstrate the usual characteristics of NHL in AIDS patients and corroborate that conventional chemotherapy programs are only moderately effective in these patients. It is clear from this data and from other reports that further work will be required to ascertain optimal therapy for the patient with AIDS-related Non-Hodgkin's Lymphoma.

INTRODUCTION

The incidence of Non-Hodkin's lymphoma (NHL) in Human Immunodeficiency Virus (HIV) - infected patients has increased rapidly since the first cases were described in 1982 (1-3). It is predicted that 8-27% of the expected cases of lymphoma in the United States will be a result of HIV infection as in increasing number of these patients live longer (4). The lymphomas associated with HIV infection are usually of high-grade B- cell origin or intermediate grade, consisting of immunoblastic, small non-cleaved (Burkitt's and non-Burkitt's type) and large cell lymphomas (5,6). Most of the patients present with widespread, extranodal disease at the time of initial presentation (7,8). The most common extranodal sites of disease are the bone marrow, liver, central nervous system (CNS) and gastrointestinal (GI) tract, but unusual sites of disease such as the rectum, heart, pericardium and even the earlobes have been described (7,9). In a multivariate analysis of 49 patients with systemic AIDS-related lymphoma, Levine et al found that history of AIDS before lymphoma, a Karnofsky performance status less than 70% and bone marrow involvement predicted for a shorter survival (10). Also lower CD4 counts appeared to suggest a shorter survival (11).

The treatment strategies for NHL in HIV-infected patients include several approaches that differ from other patients. In general, most HIV-infected patients present a poor hematologic reserve and further immunosuppression with chemotherapeutic agents increases the risk of opportunistic infections in these patients. The use of low dose regimens, such as the modification of the m-BACOD regimen by the AIDS Clinical Trials Group (ACTG) of the National Institutes of Allergy and Infectious Disease, has been associated with results obtaines with more intense regimens and with less toxicity (12).

In an intent to further elucidate the clinical manifestations and response to therapy in patients with AIDS Non-Hodgkin's lymphomas, we retrospectively analyzed eleven patients with this diagnosis treated in the San Juan City Hospital and the San Juan Veterans Administration Hospital from 1990-1993. This group of patients demonstrate the usual characteristics of NHL in AIDS patients and corroborate that further investigation is required to ascertain optimal therapy for these patients.

MATERIALS AND METHODS

A total of 11 patients with Non-Hodgkin's lymphoma and who tested seropositive for HIV at the San Juan City Hospital and the San Juan Veterans Administration Hospital between 1990-1993 were retros-

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pectively analyzed. All patients underwent uniform staging procedures and had complete history and physical examination, including an evaluation of risk factors for acquisition of HIV infection. Bone marrow aspirate and biopsy, lumbar puncture for cytology exam of cerebrospinal fluid, chest radiograph and computed axial tomography scans of the chest, abdomen, and pelvis were performed in all patients.

The Ann Arbor staging system was used (13). Survival was defined from the first cycle of chemotherapy.

RESULTS

Patient Characteristics

A total of 11 patients are included in this report (Table I). Ten patients were male and one female. Median age was 46 years (range 31 to 68 years). Five of the patients were homosexual; four had a history of intravenous drug abuse; one was heterosexual and one had an unknown risk factor for infection with HIV.

Table I.
Patient Characteristics

Total Patients (M/F)	10/1
Age, median	46
Age, range	31-68
Risk Behavior	
Homosexual	5
IVDA	4
Heterosexual	1
Unknown	1
Performance Status	70%
Prior AIDS	7 (64%)
Total CD4, average	361
Total CD4, range	51-717
LDH level	746
LDH, range	140-3631
Stage II	3 (27%)
Stage III	3 (27%)
Stage IV	5 (46%)

The average Karnofsky performance status in the patients was70%. Seven of the cases had a prior diagnosis of AIDS before the diagnosis of Non-Hodgkin's lymphoma. The average total CD4 lymphocyte subset number was 361 (range 51 to 717) and the average lactate dehydrogenase (LDH) level was 746 (range 140 to 3631; normal values 60 to 200).

The majority of patients presented with advanced disease (Stages III and IV; 73%).

Sites of Extranodal Disease at Diagnosis

Six of the eleven patients presented with extranodal disease, that included: two in gastrointestinal tract; two in skin and soft tissue; one in paranasal sinus and one with kidney invasion (Table II). There were no cases that presented with central nervous system involvement or bone marrow invasion.

Table II.
Sites of Extranodal Disease at Diagnosis

Extranodal disease	6/11 (54%)
CNS	0
GI	2/11 (18%)
Bone marrow	0
Skin/soft tissue	2/11 (18%)
Others (paranasal sinus, kidney)	2/11 (18%)

Pathologic Characteristics

Pathologic evaluation of the systemic lymphoma revealed large cell lymphoma in six patients (55%), Burkitt's lymphoma in four (36%) and one patient with immunoblastic lymphoma (9%)

Treatment Results

The majority of patients (7;64%) received the modified m-BACOD regimen which includes methotrexate, bleomycin, doxorubicin, cyclophosphamide, vincristine and prednisone with early CNS prophylaxis (11). Four of the patients (36%) receive prednisone, methotrexate, calcium leucovorin, doxorubicin, bleomycin, cyclophosphamide, etoposide, vincristine and cytosine arabinoside (ProMACE-CytaBOM) (14).

Complete remission (CR) was achieved in 5 patients (46%) and partial remission in 3 (27%). Three patients (27%) had progressive disease or no response to therapy (Table III). Mean survival was 8 months, but two patients are long term survivors 24+ and 29+ months without evidence of lymphoma (Fig. I). Both patients had large cell histology.

Four (36%) of the patients developed opportunistic infections while in chemotherapy. The average number of cycles received was four and the mean nadir count was 931 granulocytes.

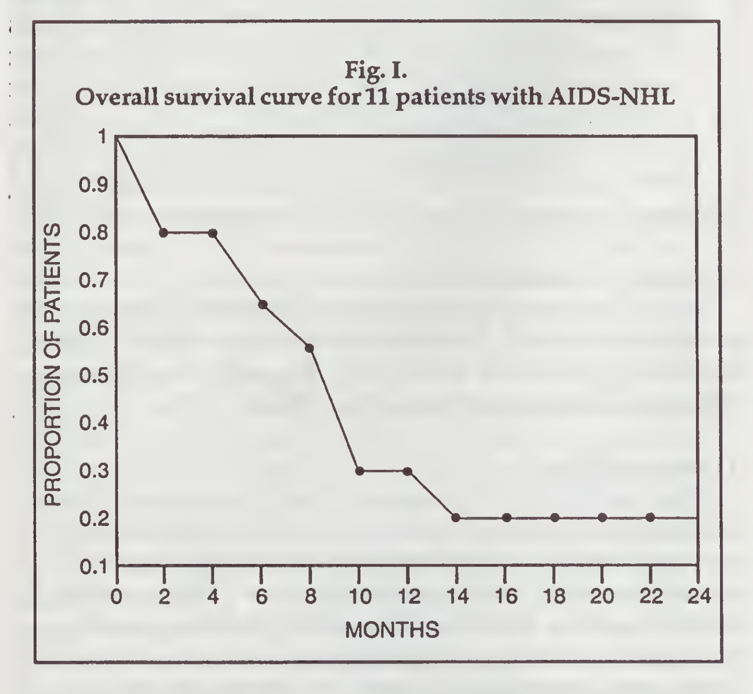
DISCUSSION

This report represents our experience with patients seropositive for HIV, with intermediate or high grade lymphoma, and which were treated with curative intent. Similar to other reports, most of the patients presented with advanced disease. Intermediate grade, large cell lymphoma was the most common pathology,

Table III.
Treatmen Results

CR	5/11 (46%)
PR	3/11 (27%)
PD	3/11 (27%)
# cycles	4
mean nadir (granulocytes)	931
% infections	4/11 (36%)
Mean survival	8 months

Fig. I.
Overall survival curve for 11 patients with AIDS-NHL



which contrasts with other series in which immunoblastic or small noncleaved lymphomas were more common (5,6). This may represent differing interpretations of the pathologic material.

Patients with AIDS-related lymphoma have commonly widespread extranodal disease at the time of initial presentation (7,8). In our report, some of the extranodal sites included the gastrointestinal tract, skin/soft tissue, paranasal sinus and the kidneys. In patients with NHL not associated to HIV, the dissease is usually limited to lymph nodes (13). Our small series does not include cases with CNS or bone marrow involvement, which has been estimated to be in 25-30% of patients with AIDS-related NHL (5).

Survival of HIV positive patients with NHL is poor, being complicated by the immune deficiency status and the development of opportunistic infections. Treatment with combination chemotherapy can be beneficial, as shown in this report in which two patients are long term supervivors and 73% of patients had a partial or complete response. However, mean survival was only 8 months, which shows that a meaningful prolongation of survival in the patient with AIDS-related lymphoma will require not only effective chemotherapy, but also control of the underlying HIV infection. The concomitant use of hematopoietic growth factors in these patients as a means to reduce the toxicity and complications of antineoplastic therapy is explored in several on-going studies (15).

Several factors, such as a poor performance status, history of prior opportunistic infections, low CD4 counts, bone marrow or CNS involvement and others, have been associated with a poor prognosis in patients with AIDS-related lymphomas (10,11). Due to the limited number of patients in this report, it is not possible to determine the statistical significance of the different prognostic factors upon the survival of these patients.

Various cytokines and growth factors, such as Interleukin 1 (IL-1), IL-2, IL-4, IL-6, IL-7, IL-10, interferon gamma, tumor necrosis factor, lymphotoxin, B-cell growth factor-25 kd (BCGF), and BCGF-50 kd have been implicated in the development and subsequent growth of malignant lymphoma in HIV infected patients (15). In this regard, modulation of these cytokines and a better understanding of the molecular mechanisms involved in the setting of HIV lymphoma is undoubtly essential for a more comprehensive and effective treatment for this disease.

In conclusion, this report presents the usual characteristics of patients with AIDS-associated Non-Hodgkin's lymphomas and corroborates that further work will be required to ascertain the optimal therapy for these patients.

Resumen: Los pacientes que sufren del Síndrome de Inmunodeficiencia Adquirida (SIDA) tienen un riesgo mayor de desarrollar linfomas del tipo Non-Hodgkin. Se estima que 8-27% de los linfomas del tipo Non-Hodgkin que se diagnostican de novo están asociados al SIDA. La mayoría de estos linfomas son de histología de alto grado o de grado intermedio. Nosotros analizamos retrospectivamente las manifestaciones clínicas y la respuesta a diferentes regímenes de quimioterapia en pacientes con linfoma Non-Hodgkin asociado a SIDA diagnosticados en el Hospital Municipal de San Juan y el Hospital de Veteranos de San Juan entre el 1990-1993. Once pacientes (10M/1F) con una edad promedio de 46 (rango de 31-68) fueron analizados. 64% (7/11) de los pacientes tenían un diagnóstico de SIDA previo al diagnóstico de linfoma. La patología fue linfoma difuso de célula grande en 6, Burkitts en 4 e inmunoblástico en 1. 73% de los pacientes se presentaron con estadío III/IV. Lugares envueltos incluyeron el tracto gastrointestinal (2), piel/tejido blando (2), seno paranasal (1), riñón (1). El régimen de tratamiento más comúnmente utilizado fue el m-BACOD modi-

ficado (64%). Respuesta completa al tratamiento ocurrió en 46% (5/11) y respuesta parcial en 27% (3/11). 36% de los pacientes desarrollaron infecciones oportunistas o bacterianas durante el tratamiento.

La sobrevida promedio fue 8 meses. Dos de los pacientes son sobrevivientes a largo plazo a 24 y 29 meses post tratamiento sin evidencia de linfoma al presente. Este grupo de pacientes demuestra las características usuales del linfoma Non-Hodgkin en pacientes con SIDA y corrobora que programas convencionales de quimioterapia son sólo efectivos de una forma moderada en estos pacientes. Es claro de estos datos y de otros reportes que se necesita más investigación para determinar la terapia óptima para el paciente con linfoma Non-Hodgkin asociado a SIDA.

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Anorectal Sigmoid Myotomy with Ileal Anastomosis after Subtotal Colectomy due to Hirschsprung's Enterocolitis: Case Report and Review of the Literature

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Summary: We presented a one year old seven months old patients that had undergone a double barreled proximal ileostomy-sigmoidostomy after resection of most of the ileum, ascending, transverse and descending colon due to Hirschsprung's enterocolitis; that was admitted for anorectal-sigmoid myotomy and ileosigmoidostomy.

The advantages of Kasai's procedure (anorectal myotomy with coloanal anastomosis) over the pull-through procedures to treat Hirschsprung's disease are discussed along with the more pertinent literature.

Introduction

A new modality in the surgical treatment of Hirschsprung's disease was proposed by M. Kasai in 1971.[1] He designed a myotomy up to the rectum with colorectal anastomosis, that avoided the pelvic dissection of the traditional pull-through procedure and allowed for the procedure to be carried out in early infancy. The rationale was to preserve the rectal wall as much as possible in order to achieve a normal anorectal function.

In this particular case we applied Kasai's principle to a patient that required a subtotal colectomy with distal ilectomy due to Hirschsprung's enterocolitis. The procedure was done in two stages, the final stage was that of ileo-sigmoidostomy in the myotomized rectosigmoid.

Case Report

A one year and seven months old male patient with double-barreled proximal ileostomy-sigmoidostomy, who had undergone resection of most of the ileum, ascending, transverse and descending colon due to Hirschsprung's enterocolitis during the first week of life, was admitted for anorectal-sigmoid myotomy. The patient was placed in the lithotomy position and a posterior anorectal myotomy was performed. This started at 0.5 cms cephalad to the pectinate line, prolonging it as cephalad as possible, and continuing it via the abdominal route all the way up to the sigmoid stoma. (Figure 1) The ileal stoma was taken down and a double layered ileosigmoidostomy was constructed.

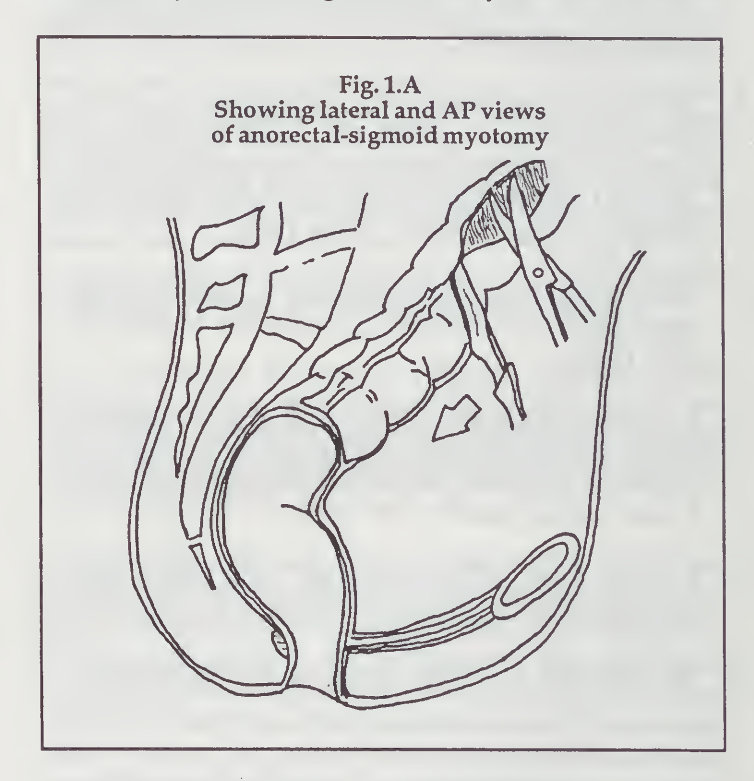
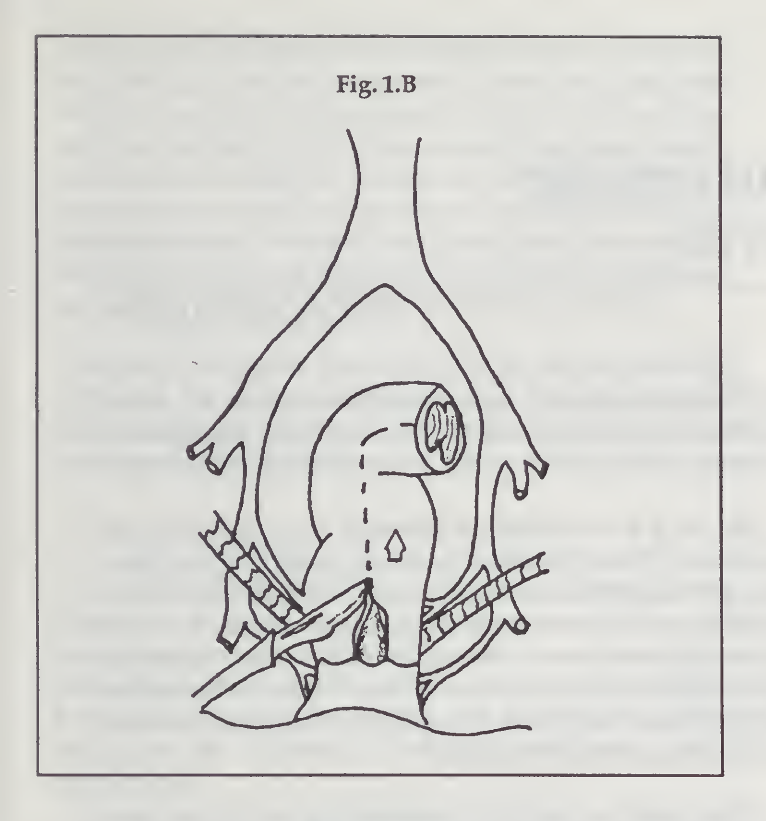


Fig. 1.A
Showing lateral and AP views of anorectal-sigmoid myotomy

Post-operatively, the patient did well and four years after the procedure he is having one to two normal bowel movements a day with an excellent anal sphincteric mechanism and anorectal sensation.

This case is unique in which the entire sigmoid colon and rectum could be preserved thus allowing proximal ileo-sigmoidostomy without severe post-operative diarrhea, generally associated with proximal ileo-anal anastomosis.

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Discussion

The majority of patients with Hirschsprung's disease undergo one of the three most common pull-through procedures (Swenson, Duhamel and Soave) for their definite treatment. These surgical procedures involve an extensive pelvic dissection that is associated with abscess formation and damage to the anal sphincteric mechanism.

The importance of the rectal myotomy designed by M. Kasai to treat Hirschsprung's disease rests in the relative simplicity of the procedure and its low morbidity. The procedure completely by-passes the pelvic diseccion of the pull-through procedures since it essentially consists in an ano-rectal myotomy followed by a colorectal anastomosis via an abdominal approach.[1] In 1966, Lynn popularized anorectal myotomy for the treatment of short segment Hirschsprung's disease. He signaled the physiopathologic similarity existing between esophageal achalasia and Hirschsprung's disease. He argued that both entities shared in common a functional obstruction caused by a persistent tonic contraction of the muscular layer, impairing the normal progression of peristalsis.[2]

Lynn demonstrated that the aganglionic segment in Hirschsprung's Disease functioned as an achalactic esophageal segment that interrupted the normal mass movements of the large bowel producing severe constipation.[2]

Based on Lynn's observations M. Kasai proposed a myotomy to treat Hirschsprung's disease. The myotomized aganglionic segment physiologically works out as an intestinal conduit that still preserves its absorptive capability permitting the progression of the intestinal content, as they are propelled by a proximal ganglionic segment. This combination of events results in well formed stools and a lower number of total daily bowel movements when we compared with colo-anal anastomosis.[2,3,4]

Our case was different to those in the Kasai´s series in that our patient lacked 75% of the colon and most of the ileum and thus the ileosigmoidostomy performed presented more liquid stools to the myotomized aganglionic sigmoid colon. It was also different in that in the Kasai's series the anastomosis were done between ganglionic colon and the myotomized aganglionic rectum, and in our case we performed a much higher anastomosis (myotomized upper aganglionic sigmoid) by taking advantage of the fact that the ileum carries a higher propulsive force. By not excising the sigmoid we obtained a higher reabsorptive surface thus diminishing the possibilities of protacted diarrhea and perianal excoriation. The longer myotomized colon resistant was overcame by the strongest propulsive force of the small bowel.

Resumen: Estamos presentando a un niño de 1 año y 7 meses de edad que había sido operado realizándole una ileostomía-sigmoidostomía después de resecarle la mayoría de su ileo, así como el colon ascendente transverso y descendente debido a enterocolitis por enfermedad de Hirschsprung's. El paciente fue admitido para realizarle una miotomía del anorectum y colon sigmoide seguido de una ileosigmoidostomía.

Las ventajas del procedimiento de Kasai (miotomía anorectal con anastomosis coloanal) sobre los procedimientos de pull-through para tratar la enfermedad de Hirschsprung's son discutidos junto con la más pertinente literatura.

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Euthanasia and Relief of Suffering: Attitudes of Medical Students

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Summary: Medical students, from the first, second and third year classes of the University of Puerto Rico School of Medicine, answered a questionaire which included testing knowledge and attitudes about euthanasia and the relief of suffering. More than 60% of each class participated, a total of two hundred.

Ninety three percent of the students knew the definition of euthanasia but 50 percent could not tell the difference between active and passive euthanasia. Students in the first year were better oriented than their counterparts in the third year (58 percent versus 44 percent). Seventy percent of the 100 students who could differentiate between active and passive euthanasia thought that active euthanasia should not be considered murder, but 69 percent were cognizant it was so considered in Puerto Rico. Eightythree percent of first year students but only 61 percent of third year students thought that physicians should alleviate suffering of terminally ill patients.

Medical schools should provide a serious, unprejudiced and complete discussion of euthanasia and other life and death issues in their curricula. A humane orientation of medical students should be given as much emphasis as other aspects of professio-nal training.

Introduction

The word euthanasia was originally descriptive of a peaceful state of mind desirable for dying patients. In modern parlance it means allowing terminally ill patients to die naturally by providing comfort measures only -passive euthanasia- or the direct killing of a terminally ill patient at a patients request -active euthanasia. A variant of active euthanasia is providing patients with the necessary means of causing their own death- assisted suicide.

Euthanasia is no longer a topic for leisurely philosophical discussions on quiet evenings. Active euthanasia is sought as a right by vocal members of our society. It is considerate a humane alternative by some members of the medical profession[1-4] and dreaded as a curse to the doctor-patient relationship by others.

Dr. Jack Kevorkian's successful transgressions of standard ethical practices by openly assisting suicides, the growing awareness of a moral evil in the indiscriminate use of our technological advances, and the grass roots notions of the right to die in the American pluralistic society forces us to reexamine what is the appropriate extent to the physicians humanitarian role in the care of the dying[5-9].

The public at large is considering the appropriateness of physician performing mercy killings or assisting terminally ill patients to end their life. Eight states (California, Iowa, Maine, Michigan, New Hampshire, Oregon, Texas and Washington) in the last 4 years have introduced bills which would make lawful for a competent terminally ill patient to request and receive assistance from a physician to commit suicide. In 1994 the people of Oregon approved such a measure. (Measure No. 16).

In this context knowledge and attitudes about euthanasia and the relief of suffering of future Puerto Rican physicians is of some importance. We report here the results of a brief opinion survey of this topic of students in the University of Puerto Rico School of Medicine.

Methods

First, second an third year medical students from the University of Puerto Rico, Medical Sciences Campus, were administered a questionnaire with 15 items, five of these provided information on their knowledge and attitudes toward euthanasia and the relief of suffering. The questionnaire was administered during a two week period in October 1993. It required yes or no answers to the following questions: 1) Do you know the definition of euthanasia? 2) Do you know the difference between active and passive

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euthanasia? 3) Should active euthanasia be considered murder? 4) Is active euthanasia, from the legal point of view, murder in Puerto Rico? 5) Should physicians alleviate suffering when they cannot treat successfully an illnes and death is inminent? No information on these topics was offered prior to the administration of the instrument. For questions 3 and 4 only the answers of those who claimed to know the difference between active and passive euthanasia were considered.

Medical students from each class distributed and collected the questionnaire in their respective class. Once collected they were received in the Medical Students Council Office.

Results

Two hundred of the 309 student body (65%) in the first second and third year classes answered the questionnaire. More than 60% of the members of each class participated. Ninety three percent or the students knew the definition or euthanasia; but 50 percent did not know the difference between active and passive euthanasia.

The lack of knowledge about this distinction was not favorably influenced by two years of medical education: Fifty percent of the students beginning the first year and 58% of the students beginning their second year could tell the difference between active and passive euthanasia but only 44% of the students in the third year could do so.

Seventy percent of the 100 students who could differentiate between active and passive euthanasia thought that active euthanasia should not be considered murder but 69% knew that legally it was considered murder in Puerto Rico.

Only 72% of students thought that physicianas should alleviate suffering when they could not favorably influence the clinical course of disease of terminally ill patients. Medical School appears to unfavorably influence a compassionate attitude: Eighty three percent of the first year students, 75% of the second year students, but only 61% of the third year students, thought that physicians should alleviate suffering when they could not favorably influence the disease of patients who were terminally ill.

Discussion

The medical student rotating in medical wards faces regularly complex medical situations in which life and death issues are real. The possibility of euthanasia and physician assisted suicide are issues that cannot be ignored while in a medical ward, particularly when considering life support, "living wills" and "do not resuscitate status".

In the third and four year of medical education it is possible to reach back to formative experiences in the first two years which help understand more closely the clinical problem at hand. However, mental files with information on ethics, sociology and death issues (which would be helpful in the analysis and understanding of life and death situations) are empty. Something is wrong with a medical education that forms technically proficient physicians but fails to provide the basic concepts to understand ethical dilemas and life and death issues. Medical students are concerned and anguished and yearn for guidance in these areas.

At this point the news media is the only source of information and misinformation for the medical student on the important topics of life and death. The press should not continue being the leader in the discussion of physician assisted suicide, euthanasia and other life and death issues. Medical schools should provide the space from where a responsible medical leadership may emerge. Medically trained leaders are needed to provide orientation and guidance in our society. Now more than ever, when the physician-patient relationship is being distorted on a regular basis with a negative therapeutic impact.

Time has come for medical schools to accept the challenge and responsibility of introducing in their curricula a serious, honest and complete discussion of euthanasia and physician assisted suicide, living wills and other life and death issues. Time has come to open the debate in the correct place. This is a concern of medical students here and elsewhere.

Medicine as a social institution has among its central intention the alleviation of human suffering. A humane orientation of medical students should be, therefore, as important as their technical training. This humane orientation provides the substrate for the willingness to care for others despite serious discomfort or personal sacrifice.

Medical education should take heed that as students had real-life experiences in the management of patients, they perceive as not appropriate to their role as physicians the relief of suffering. Could this be because in many clinical quarters the impossibility to control a terminal illness is perceived as a medical failure? Does the failure become less painful by minimizing a sustaining relationship with dying patients? While some lip service is given to the appropriate attention of terminally ill, the time constraints of a heavy case load in a busy medical ward forces the house-staff (the medical student's models) to pour their time and energy in the support of those who potentially may get well. "Wastebasket" cases do not seem an appropriate use of scarce human resources. The time and energy invested in promoting a good death for the dying is considered by many as wasted.

Terminally ill patients frequently feel abandoned. It is noteworthy that the majority of patients requesting euthanasia in the Netherlands do so not because of physical suffering but because of psychological distress related to loss of dignity and dependency[10-11]. There, as well as here, the psychological needs of the dying patient do not seem to be perceived by technologically oriented physicians. Many physicians have yet to find their proper place in the support of the dying. This place will not be found unless Medical Schools appropriately orient their students for this important professional role.

Resumen: Estudiantes de medicina de primer, segundo y tercer año contestaron un cuestionario que incluía una prueba sobre sus conocimientos y actitudes con relación a eutanasia y aliviar el sufrimiento. Más del 60 porciento de cada clase participaron, para un total de doscientos estudiantes.

Noventitrés porciento de los estudiantes conocía la definición de eutanasia pero 50 porciento no sabía la diferencia entre eutanasia pasiva y activa. Estudiantes de primer año estaban mejor informados sobre el tema que sus compañeros de tercer año (58 porciento versus 44 porciento). Setenta porciento de los cien estudiantes que podían diferenciar entre eutanasia activa y pasiva eran de opinión que la eutanasia activa no debería considerarse asesinato, aún cuando 69 porciento estaban conscientes que así se consideraba en Puerto Rico. Ochentitrés porciento de los estudiantes de primer año, pero sólo el 61 porciento de los de tercero, pensaban que era función del médico aliviar el sufrimiento de pacientes en su fase terminal.

Las escuelas de medicina deben proveer una discusión seria, no prejuiciada y completa de la eutanasia y de otros tópicos sobre la vida y la muerte en sus currículos. La orientación humanitaria de los estudiantes de medicina debe tener el mismo énfasis que otros aspectos de la vida profesional.

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Myofascial Pain Syndromes - The Great Mimicker

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Summary: Five myofascial pain syndromes, some mimicking more serious diseases, have been presented. They were diagnosed as and treated for: headache, shoulder bursitis, lumbar herniated disc with radiculopathy, angina pectoris and appendicitis.

An understanding of these pain problems, produced from trigger points in muscles and ligaments, is important in order to differentiate myofascial pain syndromes from more dangerous diseases and to avoid unnecessary and expensive diagnostic procedures.

Myofascial pain syndromes, secondary to irritated trigger points, produce characteristic pain patterns that can be easily confused with more serious diseased states. If this problem is kept in mind, diagnosis can be made readily without the need for any laboratory and/or expensive technological procedures. Relief of pain can be brought about simply by eliminating the trigger point, either by injection of a weak local anesthetic solution (0.5% lidocaine hydrochloride) or stroking with ice, followed by stretching the involved muscle. Instead of available vapocoolant spays that are destructive to the ozone layer, a number of alternative treatments as described in volume 2 of the "Trigger Point Manual" may be used.(1)

My experience with musculoskeletal pain dates back to 1947, as a student of Dr. Harold D. Storms at the Workmen's Compensation Rehabilitation Center in Toronto, Canada. There, I was made aware of tender, indurated areas in muscles that were easily palpated and could be readily eliminated using Storms' technique of massage (2). It was amazing to feel the muscles relax, and the pain leave when this was done. This special stroking-stretching massage did not take very long to bring about the release of localized spasm in most patients in less than three minutes.

Not all of these areas showed the characteristic signs of the "trigger point", as we know it today: a taut band followed by a twitch, when the trigger point was rolled or compressed with the finger tips, or the radiating pain referred to distant regions of the body (3). Whether or not the tender, indurated areas, I treated in 1947, were the same as the trigger points of today is open to speculation. The fact remains that these areas were picked up by palpation, and the pain easily relieved by massage and stretching of the muscle. This was followed by local application of infra-red heat for twenty minutes. Subsequently, stretching exercises were prescribed, and suggestions to improve body posture given.

There has never been any generally accepted explanation for the etiology of trigger points. My original explanation centered on the assumption of microtraumas of muscle fibers that left no pathophysiological evidence but shortened or interfered in some way with muscle plasticity. Poor postural habits accentuated this pathophysiological problem and produced the localized trigger point. This observation was made while I was employed by the State Insurance Fund of Puerto Rico in the mid 40s. Yet, I soon gave up this theory when Arana-Soto (4), working at the same place, found that stevedores, who lifted and carried 200 pound sacks of sugar, rarely had trigger points in their shoulder-girdle muscles, but stenographers invariably complained of them. Certainly, strenuous manual labor should produce microtraumas, more so than in sedentary workers, but I never found them in the shoulder-girdle muscles of the stevedores. Was it the physical deconditioning, the aberrant control mechanisms in the brain, heterogenous neurohormonal dysfunction, emotional distress, poor sleep, poor posture, etc., etc. (5) that produced the trigger points in the stenographers and not in the stevedores? Simmons (6) has proposed an energy crisis hypothesis that involves hypoxia of the muscle. Hypoxia will certainly aggravate and probably activate the trigger point mechanisms in a sedentary worker. Sustained overload is a very common source of trigger points in any muscle, specially in a secretary with deconditioned shoulder-girdle muscles.

Prior to preparing this paper, I requested a Medline Search on the subjects of Fibromyalgia, Myofascial Pain syndromes,Trigger Points, and Tension Myalgia (7) from 1981-92. There were over 200 review articles, and individual papers on these topics were more numerous. It is obvious that this disease of muscle. the largest organ in the body, has been extensively studied. My purpose in presenting this paper is to emphasize the importance of examining muscles in

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order to eliminate the trigger-point syndrome as a cause of pain.

Trigger points can be found in most muscles and produce radiating pain syndromes when irritated. In addition to muscles, they can also be found in tendons and ligaments with resulting pain patterns that are similar to those of muscle origin. Hackett (8) was able to map out referred pain patterns, caused by pressure on these points, while injecting a sclerosing solution to treat ligament and tendon relaxation causing skeletal disability.

Elimination of contributing factors is essential for the success of treatment. Most important is to review postural habits at work and home, physical deconditioning that contributes to motor dysfunction, psychological stresses and sleep disturbances. In addition, medical conditions, such as degenerative joint disease and thyroid problems must be investigated, as well as any anatomical variation, a short leg, for example. Depending where the trigger point is located, there are characteristic referred pain patterns that establish the diagnosis. These have been collected and published by Travell and Simons in two much appreciated textbooks (3,1). Not to be forgotten is that early diagnosis and prompt treatment leads to the best prognosis.

Physicians and surgeons are cognizant of referred pain syndromes from diseased organs in the body and make use of them in their differential diagnoses. To mind comes the right shoulder pain from a diseased gall bladder and the never-to-be-forgotten pain from an attack of angina pectoris radiating down the ulnar side of the left arm. They should also be familiar with myofascial pain syndromes and the typical radiation pain patterns that do not follow segmental distribution of neurological etiology. Some of them truly mimic more serious pathological problems and should be considered in the differential diagnosis. Over the past 45 years, I have seen many patients with different myofascial pain syndromes but will comment only on five, presenting with: headache, limited shoulder motion, lumbar radiculopathy, the three most frequent; and, angina pectoris and appendicitis.

Headache

Many patients have received relief of their excruciating headaches by finding and eliminating the offending trigger points and correcting faulty posture. The typical patient is a female: housewife, teacher, stenographer or an assembly-line worker, past the bloom of youth, emotionally upset because of family problems, with poor posture, and with difficulty in finding a comfortable position to sleep. She has changed her eyeglasses or contact lenses several times without relief of "eye strain", lives on aspirin, acetaminophen or the more expensive, prescribed non-steroid anti-inflammatory drugs with minimal relief, has had numerous laboratory and multiple radiological studies, even computerized axial tomography of the cervical vertebrae and magnetic resonance imaging (MRI) of the brain, all found to be normal. Yet, she continues with persistent headaches and finally is labelled a psychoneurotic and referred to a psychiatrist. This is the patient whose medical insurance costs are astronomical.

Depending on where the trigger point is located in the cervical or shoulder-girdle muscles, there are different referred referred pain patterns, some to the occipital region, some to the temporal, and some to the frontal. An irritated trigger point in the upper trapezius muscle above the clavicle will refer pain along the posterior-lateral surface of the neck to the mastoid region; and when intense, to the temple area and back of the orbit, a temporal headache. Even more productive of "tension" headaches are trigger points in the sternocleidomastoid muscle with referred pain to the cheek, temple and orbit from the sternal division and frontal headache and dizziness from the clavicular portion. The headache from this trigger point is readily mistaken for a vascular headache or a sinus headache. Elevating the head on pillows to promote sinus drainage makes the pain worse since flexing the neck shortens the sternocleidomastoid muscles and irritates their trigger points.

Headache due to trigger points in the temporalis muscle commonly produces referred pain throughout the temple and along the eyebrow. The greater occipital nerve may be caught in a spasm of the semispinalis capitis muscle with resulting pain referred to the supraorbital region. Postural stresses overload the extensors and rotators of the head, splenius cervicis, splenius capitis and other posterior cervical muscles, producing referred pain to the occipital region and across the side of the head to the temporal region. This is common in myopic persons, who constantly extend their heads to read from the bottom of their bifocal eyeglasses. Flexing the head to relieve the strain makes the pain worse since this movement shortens the sternocleidomastoid muscles and activates their trigger points. A similar problem is found in the typist, who flexes her head to see the typewriter and turns her head to read the typing material placed above and to the side of the machine. The myopic changes glasses frequently, thinking the pain is from the eyes; the typist lives on analgesics and compensation benefits.

Shoulder Bursitis

Shoulder pain is a very common complaint, and the referring diagnosis is invariably a "bursitis"; but the final diagnosis should never be made before the upper

trapezius and short rotator muscles, namely, the supraspinatus and infraspinatus, are examined. There is usually a dull ache in the shoulder and/or shoulder-girdle region, and any attempt to move the shoulder is painful. Careful examination will uncover trigger points and exquisite tenderness in the involved muscles with characteristic pain radiation. Irritation of the trigger points in the supraspinatus and infraspinatus muscles have a similar radiation down the upper extremity except pain from the infraspinatus is referred down the forearm to the hand, while from the supraspinatus to the elbow. A subdeltoid bursitis or a peritendinitis of the short rotator tendons of the shoulder presents with a stiff shoulder, and a cervical radiculitis with a stiff neck; neither of which is present with myofascial pain originating in the short shoulder rotator muscles. An injection of local anesthesia into the shoulder joint or attachment of the tendons will not relieve the pain, but inactivation of the trigger point area in the short rotator or trapezius muscle will produce intant relief and a miraculous return of shoulder function.

Lumbar Herniated Disc

Activation of trigger points in the gluteal muscles, notable the gluteus minimus, produces a syndrome that is difficult to distinguish from a "sciatica". As a matter of fact, pain referred from a trigger point in the gluteus minimus muscle has been labelled "pseudosciatica" (9). The gluteus maximus trigger points radiate pain to the lower buttocks, and those from the gluteus medius, the "lumbago" muscle, to the sacrum and posterior-lateral aspects of the buttocks with some extension of pain and tenderness to the posterior-lateral surface of the upper thigh. Sola (10) believes that pain from gluteus medius trigger point extends to the posterior thigh and upper calf. The pain from a trigger point in the gluteus minimus can be excruciating, and, almost always, the patient is referred with the presumptive diagnosis of a lumbar radiculitis due to a herniated L5-S1 nucleus pulposus. The differential diagnosis becomes more difficult when the MRI shows evidence of a herniated nucleus pulposus. To operate or not becomes an enigma. Fortunately, there is a tendency amongst neurosurgeons today to wait and see before rushing into the operating room. A search for trigger points should be made before surgery and, definitely, before repeated lumbar laminectomies. Symptoms from the anterior fibers of the gluteus minimus may mimic an L5 radiculopathy and those from the posterior fibers an S1 radiculopathy.

Angina Pectoris

Trigger points located in the left pectoralis minor, but also in the pectoralis major muscle, can produce pain that is very similar and must be differentiated from a true angina pectoris (11). The radiation of pain is similar, from the precordial region down the medial-ulnar side of the left upper extremity. Although palpation of the pectoralis muscles will never supplant a cardiac stress test, whenever this syndrome appears, the cardiologist should consider this possibility if the test fails to show cardiac insufficiency. This problem is common in weekend gardeners and golfers, who can become cardiac cripples from this experience.

Appendicitis

My personal attack of appendicitis after a severe coughing spell bears repeating. There was pain over McBurney's area, vomiting and diarrhea, pulmonary symptoms, and slightly elevated whiteblood cell count in a 65 year old man. There was epigastric distress and other gastrointestinal signs, most likely the result of medication for the pulmonary disease. My surgical colleague was watching me closely, but I had no abdominal rigidity and no rebound enderness, so he held off. Then, I found a trigger point in the thoracic paravertebral muscles, at the level of the eleventh rib, which produced a referred pain to McBuney's area. The surgeon was amazed with my diagnosis, but he humored me and injected the tender area with 5cc of 0.5% lidocaine hydrochloride solution with complete relief of pain. I have never had a recurrence of this pain. Neither have I seen another patient with this syndrome. They are referred to the surgeon as they should be. Nevertheless, I hope my surgical colleagues will include a search for a trigger point at the level of the 10-11th thoracic paravertebral muscles before they operate. At least, they should do so whenever a normal appendix is removed.

Conclusion

The medical world owes a debt of gratitude to Janet G. Travell, M.D. for her pioneering observations on the importance of myofascial pain syndromes and trigger points. Also, to David G. Simons, M.D., who along with Dr. Travell wrote and published their extraordinary "Trigger Point Manuals" (3,1). The muscle is the largest organ in the body, and myofascial pain syndromes constitute an important reason why patients seek medical care. There are almost as many myofascial pain syndromes as there are muscles and ligaments in the body. An understanding of these pain syndromes, produced from trigger points in these tissues, is necessary to differentiate these problems from more dangerous diseases. Myofascial pain syndromes can be readily diagnosed and successfully treated if the examining physician keeps them in mind and locates them during the physical examination. Also, early recognition and appropriate management of myofascial pain syndromes can eliminate a lot of expensive, unnecessary diagnostic procedures as well as save the patient a lot of money.

Resumen: Se presentó cinco síndromes de dolor miofascial, algunos con síntomas imitando enfermedades más peligrosas. Fueron diagnosticados como dolor de cabeza, bursitis del hombro, disco herniado lumbar con radiculopatía, angina de pecho y apendicitis.

Tener conocimiento del origen de los dolores producidos por los "trigger points" en los músculos y ligamentos del cuerpo humano es importante para poder diferenciar estos síndromes miofasciales de las enfermedades más peligrosas y así evitar procedimientos diagnósticos innecesarios y costosos.

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Artículos Especiales:

Extra-Adrenal Pheochromocytoma

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Summary: We have presented our experience in the diagnosis and management of three patients with extra-adrenal pheochromocytomas. Only two had hypertension, although all three had increased catecholamine production. The third patient was normotensive preoperatively and remained normotensive after the immediate postoperative period. Two patients are alive and without evidence of disease, the third patient died from what was considered to be a malignant pheochromocytoma. All three patients presented with palpable masses, confirmed by computarized tomography.

Introduction

Extra-adrenal pheochromocytomas are unusual tumors. Pheochromocytomas classically produce palpitations, sweating, headaches and pallor, hypertension and abdominal masses. Pheochromocytoma is known as the 10% tumor, since 10% are malignant, 10% are bilateral and 10% are extra-adrenal. The latter may understimate the problem since extra-adrenal pheochromocytomas occur in 20-30% of all patients with pheochromocytomas. (1,2) They are not usually associated with other endocrine gland diseases. These tumors are usually multicentric. (3,4)

Paraganglion cells are seen in the adrenal medulla, in chemoreceptors such as the aortic and carotid bodies and in sympathetic ganglia in the cervical, thoracic and abdominal region. Pheochromocytomas can occur at any of those locations. The most common location is between the diaphragm and the inferior renal pole, while the organ of Zuckerkandl (collection of paraganglion tissue contiguous to the aorta at its bifurcation) is the second most common extra-adrenal location. But pheochromocytomas have been reported to occur in the urinary bladder, ovaries, vaginal wall, sacrococcygeal region, thorax and neck.

Extra-adrenal pheochromocytomas are more frequently malignant than those of adrenal origin. While 10% of adrenal tumors are malignant up to 40% of extra-adrenal tumors reported to be malignant. (5,6)

In recent years we have had the opportunity to manage three patients with extra-adrenal pheochromocytomas.

Case Reports

1. J.R.C. a 54 year old male patient with hypertension of 15 years duration, uncontrolled for the last two years accompanied by severe headaches. He was being treated with Procardia 10 mgs q. 8 hours. He also had mild diabetes, not requiring Insulin. His blood pressure was 170/110. Examination of the abdomen revealed a left upper quadrant mass. Upper gastrointestinal series was normal. A CT of the abdomen demonstrated a large roundish mass at the left upper quadrant measuring 13.1 x 11 cm in diameter. The adrenal glands were normal and there was no retroperitoneal node enlargement. The metanephrine in the urine was extremely high, 59,060 ngms/24 hours. (Normal 0-1000) Norepinephrine was 200, epinephrine 32 and dopamine 610, all three above normal levels. The serum calcium and calcitonin were normal. On May 2, 1989 the patient was explored and a large tumor measuring 18 x 13 x 12.5 cms weighing 1,100 grams was removed. The pathologic diagnosis was pheochromocytoma. The patient is presently normotensive.

2. M.M.B. a 29 year old female with hypertension in her 12th week of gestation and also suffering from hyperthyroidism and an atrial septal defect. She was on Inderal 80 daily and Capoten 25 mgs bid. Her blood pressure was 200/110, Pulse 120/min. Dibenzyline was added for the control of her hypertension PTU (propyl thiouracil) was given for her hyperthyroidism. Physical examination revealed an enlarged thyroid gland twice its normal size. She had a grade 3/6 systolic murmur over the whole precordium and a palpable mass toward the left paraumbilical area. The total metanephrine in the urine was 10,734 ugms/24 hours. (Normal 140-820) Serum calcium and glucose were normal. After two weeks of treatment she had a missed abortion and a dilatation and curettage was done. On February 5, 1991 the patient was explored and a left para-aortic tumor measuring 6.5 x 5.5 x 4.8 cms and weighing 80 grams was removed. Electron microscopy confirmed the presence of neuroendocrine

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secretory granules. On May 23, 1991 the patient was treated with radioactive iodine for her hyperthyroidism. Presently she is normotensive and euthyroid.

3. J.M.R. is a 46 year old male patient who was admitted on January 19, 1989 with melena and anemia. The patient denied history of liver disease, hepatitis or jauncide. Physical examination revealed a blood pressure of 130/80, pulse 84/min. He presented an ill defined mass on the right paraumbilical area. An upper gastrointestinal series showed the presence of multiple varices in the third portion of the duodenum. A sonogram showed a mass below the pancreas and in front of the aorta measuring 10.9 x 11.3 x 7.6 cms. CT of the abdomen demonstrated a huge heterogenous mass that appears to originate in the vicinity of the head of the pancreas and extending infero-anteriorly and containing coarse calcifications. A visceral arteriogram showed a soft tissue mass in the right paravertebral region supplied by the gastroduodenal artery as well as the ilio-colic artery. The splenic and portal veins were patent. On January 10, 1989 the patient was explored. Upon anesthesia induction the patient developed a hypertensive crisis, requiring the use of short acting alpha blockers and volume manipulation. After stabilization, exploration of the abdomen revealed a huge vascular mass at the root of the mesentery, lateral and inferior to the pancreas with multiple arterial and venous feeding vessels entering the third portion of the duodenum. The lesion was judged to be unresectable because of its location and a biopsy was taken. After an episode of pulmonary edema the patient recovered and the blood pressure remained normal. He was started on Dibenziline but no chemotherapy was given. Norepinephrine was markedly elevated in the urine, epinephrine was normal. Subsequently the patient was admitted with gastrointestinal bleeding and pulmonary edema. Upper endoscopy again confirmed the presence of the varices in the third portion of the duodenum. The patient died at home in June 1994, five years after operation and diagnosis. No autopsy was done.

Discussion

Pheochromocytoma is one of the three adrenal tumors that produce hypertension, the other two are aldosteronomas and Cushing's syndrome. Most of the patients become normotensive after removal of the offending lesion. Hypertension in young and middle age patients should be investigated to detect those patients with endocrine tumors who can be cured by surgery. For every case diagnosed during life, at least one would be discovered incidentally during autopsy.(7)

Extra-adrenal pheochromocytomas produce hypertension by the same mechanism than those of adrenal origin, by increasing the catecholamines production. Two of our patients with extra-adrenal pheochromocytomas presented with hypertension, the third patient was normotensive, for that reason no catecholamines tests were done preoperatively.

Two of our patients became normotensive after removal of the tumor and the urine catecholamines are normal. The other patient became normotensive after recovering from surgery and never developed arterial hypertension, even though the catecholamines were elevated.

The pathologic diagnosis of pheochromocytoma is difficult by conventional histology, electron microscopy studies are frequently required to confirm the diagnosis. Malignant changes are also hard to detect. Our first two patients are alive and without evidence of metastatic disease, the third patient was considered to have a malignant pheochromocytoma because of its extension and behavior. Unfortunately that tumor was not resectable. No chemotherapy was recommended by our consultant. Some reports of patients treated with chemotherapy and or radiotherapy fail to reveal a better survival. (8) A long period of follow up is needed to detect malignancy in these patients.

Although there are some reports indicating that extra-adrenal pheochromocytomas are more frequently malignant than the adrenal counterpart, other studies fail to confirm that notion. (9)

Patients with pheochromocytomas are cured in over 90% of the occasions. Only rarely are extra-adrenal pheochromocytomas associated with other endocrine gland disease. (10) None of our three patients exhibited multiple endocrine gland involvement. Although Grave's disease have been simulated by chromaffin tumors, (11) our second patient had hyperthyroidism confirmed by measuring T3 and T4 in the blood, the disease persisted after removal of the pheochromocytoma and required further treatment with radioiodine.

Nowadays the localization of adrenal or extra-adrenal tumors is easily done utilizing the CT. Computarized tomography accurately localized the extra-adrenal tumors as well as its size. Iodine methyliodobenzylguanidine (I-MIBG) scintigraphy has been utilized but it is expensive and not available in many institutions. Some radiologists believe that MRI may be superior to CT for the diagnosis of extra-adrenal tumors because of better resolution and tissue characterization. (12) Invasive diagnostic studies such as arteriography and vena cava catecholamine sampling are no longer recommended except in some specific circumstances.

Apparently the frequency of extra-adrenal pheochromocytomas is increasing, probably as a result of

better and more accurate diagnostic methods, nevertheless a single surgeons experience continues to be scarce. The operative mortality for pheochromocytomas is around three percent. (13).

Resumen: Hemos presentado nuestra experiencia en el diagnóstico y manejo de tres pacientes con feocromocitomas de origen extra-adrenal. Sólo dos manifestaron hipertensión, aunque los tres presentaban un aumento en la producción de catecolaminas. El tercer paciente estaba normotenso preoperatoriamente y se mantuvo normotenso luego del período post-operatorio inmediato. Dos de los pacientes están vivos sin evidencia de enfermedad, el tercer paciente murió como resultado de lo que consideramos un feocromocitoma maligno. Los tres pacientes presentaban masas abdominales palpables, confirmadas por tomografía computadorizada.

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